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CURRICULUM SUBCOMMITTEE AGENDA
6 November 2014

A meeting of the Curriculum Subcommittee of the Educational Policies Committee will be held on 6 November 2014 at 2 p.m. in Old Main 136 (Champ Hall Conference Room).

Approval of the minutes of the 2 October 2014 meeting

College of Agriculture and Applied Sciences

Animal, Dairy and Veterinary Sciences						
Course	Cr.	Title	Type	Details	Offered	Effective
ADVS 3150	3	Principles of Equine Assisted Activities and Therapies	New Course	This course will provide an overview of the growing field of Equine Assisted Activities and Therapies (EAAT). It will explore the various disciplines within the EAAT; the standards and best practices for providing EAAT services; and how horses and humans interact within the EAAT setting.	Fall	Fall 2015
ADVS 6680/7680	3	Seminar in Veterinary Pathology and Histopathology	New Course, Dual List, Pass/Fail Only	The goal of this course is to develop advanced histopathology skills as well as critical thinking skills. It consists of biweekly, 1 hour long microscopic slides and medical literature reviews covering a wide variety of diseases in domestic and non-domestic animals. This course is intended for advanced graduate students and veterinary pathology residents.	Spring	Fall 2015
ADVS 7510	4	Veterinary Microscopic Anatomy	Dual List Change	Dual list with VM 7510: this course is already being taught as part of the WA-ID-MT-UT (WIMU) Regional Program in Veterinary Medicine. Opening this course up to a limited number of graduate students (max 4 per year) will expand the course offerings available to graduate students with appropriate interests.	Fall	Fall 2015

ADVS 7519	4	Veterinary Physiology I	Dual List Change	Dual list with VM 7519: this course is already being taught as part of the WA-ID-MT-UT (WIMU) Regional Program in Veterinary Medicine. Opening this course up to a limited number of graduate students (max 4 per year) will expand the course offerings available to graduate students with appropriate interests.	Fall	Fall 2015
ADVS 7520	5	Veterinary Physiology II	Dual List Change	Dual list with VM 7520: this course is already being taught as part of the WA-ID-MT-UT (WIMU) Regional Program in Veterinary Medicine. Opening this course up to a limited number of graduate students (max 4 per year) will expand the course offerings available to graduate students with appropriate interests.	Spring	Fall 2015
ADVS 7534	3	Veterinary Immunology	Dual List Change	Dual list with VM 7534: this course is already being taught as part of the WA-ID-MT-UT (WIMU) Regional Program in Veterinary Medicine. Opening this course up to a limited number of graduate students (max 4 per year) will expand the course offerings available to graduate students with appropriate interests.	Spring	Fall 2015
ADVS 7535	3	Veterinary Virology	Dual List Change	Dual list with VM 7535: this course is already being taught as part of the WA-ID-MT-UT (WIMU) Regional Program in Veterinary Medicine. Opening this course up to a limited number of graduate students (max 4 per year) will expand the course offerings available to graduate students with appropriate interests.	Fall	Fall 2015

ADVS 7536	4	Veterinary Bacteriology	Dual List Change	Dual list with VM 7536: this course is already being taught as part of the WA-ID-MT-UT (WIMU) Regional Program in Veterinary Medicine. Opening this course up to a limited number of graduate students (max 4 per year) will expand the course offerings available to graduate students with appropriate interests.	Fall	Fall 2015
ADVS 7545	2	General Pathology	Dual List Change	Dual list with VM 7545: this course is already being taught as part of the WA-ID-MT-UT (WIMU) Regional Program in Veterinary Medicine. Opening this course up to a limited number of graduate students (max 4 per year) will expand the course offerings available to graduate students with appropriate interests.	Fall	Fall 2015

Landscape Architecture and Environmental Planning

Course	Cr.	Title	Type	Details	Offered	Effective
LAEP 3400	5	Geodesign Studio: Advanced Geographic Information and Tools	New Course	Geodesign Studio is to introduce the recent development of geographic information and geospatial-technologies, and to explore the applications in Landscape Architecture and Environmental Planning	Spring	Fall 2015

Nutrition, Dietetics and Food Sciences

Course	Cr.	Title	Type	Details	Offered	Effective
NDFS 1010	3	Chocolate: Science, History, and Society	New Course	This course will introduce students to the science behind chocolate manufacturing. The course will focus on physical and scientific concepts behind chocolate making and will tie these concepts to the history and social impacts associated with this high-value product.	Fall	Fall 2015
NDFS 4500	2	Community Nutrition Experience II	New Course	Practical experience in community nutrition. Integration and application of material learned in NDFS 4480. Prerequisite: NDFS 4480	Spring	Fall 2015

NDFS 5310/ 6310	3	Fundamentals of Nutrition Research	New Course, Cross Listed	This course will instruct students on the theoretical, practical and ethical aspects associated with the design, execution and dissemination of preclinical and clinical nutrition research studies. Prerequisites: NDFS 4020	Fall, Spring	Spring 2015*
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School of Applied Sciences, Technology and Education						
Course	Cr.	Title	Type	Details	Offered	Effective
AV 2500	1	Flight Experience	New Course, Pass/Fail Only, Repeatable	Building flight time for career development. Prerequisite: AV 2350	Fall, Spring, Summer	Fall 2015
OPDD 1700	1	Outdoor Product Design & Development Professional Seminar	New Course, Repeatable	Orientation to outdoor industry. Exploration of careers, professional opportunities in industry will be identified and discussed. Participation of industry leaders will be integrated into seminar to expose students to current issues, topics in industry. Repeatable for up to eight credits.	Fall, Spring	Fall 2015
OPDD 1750	3	History of the Outdoor Product Industry	New Course	An examination of the progression of the outdoor product industry, including apparel, tools, and other equipment. Investigations will include the context of the industry's past to present while considering the environment, ethics, consumer behavior and the change in product design.	Fall	Fall 2015
OPDD 3030	3	Design Thinking, Methods, and Materials	New Course	An in-depth exploration of properties, language, function of materials used for outdoor product design. Application of design thinking methodologies will guide the exploration of how materials function when different design methods are used for outdoor product development. Prereq: TEE 1030	Spring	Fall 2015

OPDD 3400	3	Color Theory & Design	New Course	Exploration of color, its anomalies, emotional responses to, symbolism, trends applied to product design. Analysis of social, cultural, and psychological implications of color in everyday life. Color interactions and science are applied through a series of industry-driven design projects.	Fall	Fall 2015
OPDD 3760	3	Outdoor Product Design and Development Studio I	New Course	Studio projects applying concepts related to materials and fasteners used in the outdoor product industry. Students will experiment with various combinations of materials and methodologies for design of soft goods for leisure and sports gear. Prereq: OPDD 3030.	Fall	Fall 2015
OPDD 3770	3	Outdoor Product Design and Development Studio II	New Course	Studio projects applying concepts related to contexts, materials, and components of outdoor product with an emphasis on designing for diverse contexts and applications. Students will experiment with new solutions, uses for products considering contextual factors that impact design. Prereq: OPDD 3760	Spring	Fall 2015
OPDD 4250	3	Outdoor Product Design and Development Industry Experience	New Course	Outdoor product industry experience applying knowledge and skills in business and industry settings. Prereq: Permission of Instructor	Fall, Spring, Summer	Fall 2015
OPDD 4420	3	Digital Design Technologies for Outdoor Products I	New Course	Using industry-standard software, students will apply creative and innovative problem-solving skills to outdoor product design. Students will create and develop design ideas using 3-D modeling software and the Adobe Creative Suite (specifically Adobe Illustrator). Prereq: TEE 1200	Fall	Fall 2015

OPDD 4430	3	Digital Design Technologies for Outdoor Products II	New Course	Advanced application of skills learned in Digital Design Technologies I to the development of seamless print and logo design, tech-pack development and other applications that require Adobe Illustrator and 3-D modeling software. Prereq: OPDD 4420	Spring	Fall 2015
OPDD 4440	3	Aesthetics, Human Factors, and Brand Image	New Course	Exploration of application of the relationship between user needs, aesthetics, and brand image. Consideration of human factors that influence design. Students will develop detailed user and brand profiles. Prereq: OPDD 3030	Fall	Fall 2015
OPDD 4740	3	Senior Design Studio I	New Course	Outdoor product design and development projects focusing on research, ideation, prototype, development, and professional presentation using technology to communicate ideas. Consideration of economic viability and environmental impact of design is required. Prereq: Senior ranking and OPDD 4430	Fall	Fall 2015
OPDD 4760	3	Senior Design Studio II	New Course	Emphasis on complete design and development of a collection of outdoor products. Specifications and products are developed according to industry requirements. A cohesive collection will be manufactured and presented. Prereq: Senior ranking and OPDD 4750	Spring	Fall 2015
OPDD 4770	1	Senior Exhibit	New Course	Professional display and presentation of student work in preparation for formal exhibit. Student work will be reviewed and critiqued by industry leaders and experts before exhibit opens.	Spring	Fall 2015

Caine College of the Arts
Department of Art and Design

Course	Cr.	Title	Type	Details	Offered	Effective
ART 3370	3	Illustration Concepts	Remove Repeatable for Credit	Capacity not available to accommodate repeat students.	Fall	Fall 2015
ART 3400	3	Typography	Remove Repeatable for Credit	Capacity not available to accommodate repeat students.	Spring	Fall 2015
ART 4440	3	Type, Image and Visual Continuity	Remove Repeatable for Credit	Capacity not available to accommodate repeat students.	Spring	Fall 2015
ART 4460	3	Motion Design	Remove Repeatable for Credit	Capacity not available to accommodate repeat students.	Spring	Fall 2015
ARTH 2640	3	Survey of Asian Art: Ancient to Modern	Delete Course	This course has never been offered. All Art and Design majors must take ARTH 2710 and 2720 and this fulfills the foundation level requirements for their degrees. While there is no demand for this course, there is urgent need for more upper division art history courses. A thoroughly revised syllabus for a 3000 level course on Asian Art will be submitted for approval.		Spring 2015
ARTH 3310	3	History of Asian Art: Ancient to Modern	New Course	This course will introduce students to the arts of Asia from antiquity to the modern period. Prerequisites for the course are ARTH 2710 and ARTH 2720.	Fall, Spring	Spring 2015

College of Engineering
 No Business

College of Humanities and Social Sciences

History

Course	Cr.	Title	Type	Details	Offered	Effective
HIST/ENGL 6750	3	Folk Art, Tradition Art, and Material Culture	Title Change	Change from Cultural and Historical Museums.	Taught Alternate Years	Fall 2015
			Description Change	This course is a graduate level seminar. Course of study includes the history of the idea of folk art, contemporary and established questions pertaining to vernacular production, and an exploration and analysis of actual objects in relation to theory.		

College of Science

Mathematics and Statistics

Course	Cr.	Title	Type	Details	Offered	Effective
MATH 1060	2	Trigonometry	Prerequisite Change	Prerequisite/Restriction: One of the following within the last year or three consecutive semesters (including summer): ACT Math score of 23 or higher; SAT Math score of 540 or higher; AP Calculus AB exam score of 3 or higher; Grade of C or better in MATH 0995 or MATH 1010; Grade of C- or higher in MATH 1050; or satisfactory score on the Math Placement Exam.	Fall, Spring, Summer	Fall 2015

Emma Eccles Jones College of Education & Human Services

Communicative Disorders and Deaf Education

Course	Cr.	Title	Type	Details	Offered	Effective
COMD 6220	1-3	Severe Communication Impairments	Credit Hour Change	Requesting change from 3 cr hours to 1-3 credit hours, allowing flexibility in enrollment for speech-language pathology graduate students.	Fall, Spring, Summer	Fall 2015

Health, Physical Education and Recreation

Course	Cr.	Title	Type	Details	Offered	Effective
PE 1705	1	Ballet	New Course	This course is a ballet technique class for adults. Correct technique and alignment will be stressed. Basic ballet positions of the body will be learned or reviewed. Barre work will be followed by center work. Pass/Fail Only	Fall, Spring, Summer	Spring 2015

Nursing and Health Professions

Course	Cr.	Title	Type	Details	Offered	Effective
NURS 1010	2	Introduction to Nursing	Prerequisite Change	Prerequisites: CHEM 1110, CHEM 1115, MATH 1050	Summer	Summer 2015
NURS 1015	2	Introduction to Health Care I	Credit Hour Change	Health care education is challenging. Through this course, we hope to help students be better prepared for the nursing program and a long career as a health care provider. Only one credit is not enough to cover the topics needed. So, we are asking to add a credit to this course.	Fall, Spring	Fall 2015
NURS 1020	5	Fundamental Concepts of Nursing	Prerequisite Change	Remove PSY 1010 (all other prereqs remain)	Spring	Fall 2015
NURS 1030	4	Fundamental Concepts of Nursing Clinical	Prerequisite Change	Remove PSY 1010 (all other prereqs remain)	Spring	Fall 2015
NURS 1120	1	Family Nursing I	Prerequisite Change	Remove PSY 1010 (all other prereqs remain)	Spring	Fall 2015
NURS 1130	1	Family Nursing I Clinical	Delete Course	The nursing accrediting body (ACEN) is requiring practical nursing programs to carefully evaluate all credits. In doing the analysis of course, faculty felt some materials in this course were redundant. Other material will be moved into other courses to better meet the students' learning needs and accreditation requirements.	n/a	Fall 2015
NURS 1220	3	Nursing Process I	Prerequisite Change	Remove PSY 1010 (all other prereqs remain)	Spring	Fall 2015
NURS 1230	4	Nursing Process I Clinical	Prerequisite Change	Remove PSY 1010 (all other prereqs remain)	Spring	Fall 2015

NURS 1240	1	Practical Nursing Practice	Delete Course	The nursing accrediting body (ACEN) is requiring practical nursing programs to carefully evaluate all credits. In doing the analysis of course, faculty felt some materials in this course were redundant. Other material will be moved into other courses to better meet the students' learning needs and accreditation requirements.	n/a	Fall 2015
NURS 2020	5	Nursing Process II	Prerequisite Change	Remove MATH 1030 and add MATH 1050; remove NURS 2010 (all other prereqs remain)	Fall	Fall 2015
			Credit Hour Change	Materials from NURS 2010 (being deleted) are being moved into this course to better meet the students' learning needs and accreditation requirements. Therefore, we propose an increase from 4 to 5 credits.		
NURS 2030	5	Nursing Process II Clinical	Prerequisite Change	Remove MATH 1030 and add MATH 1050; remove NURS 2010 (all other prereqs remain)	Fall	Fall 2015
			Credit Hour Change	Materials from NURS 2010 (being deleted) are being moved into this course to better meet the students' learning needs and accreditation requirements. Therefore, we propose an increase from 4 to 5 credits.		
NURS 2120	1	Family Nursing II	Prerequisite Change	Remove MATH 1030 and add MATH 1050; remove NURS 2010 (all other prereqs remain)	Fall	Fall 2015
NURS 2220	5	Manager of Care	Prerequisite Change	Remove MATH 1030 and add MATH 1050; remove NURS 2010 (all other prereqs remain)	Spring	Fall 2015
NURS 2230	5	Manager of Care Clinical	Prerequisite Change	Remove MATH 1030 and add MATH 1050; remove NURS 2010 (all other prereqs remain)	Spring	Fall 2015

Special Education and Rehabilitation

Course	Cr.	Title	Type	Details	Offered	Effective
REH 7070	1-3	REH Grant Writing Internship	Title Change	Previous title did not clearly indicate that this is an internship rather than a didactic course.		Spring 2015
REH 7710	2	Disability Studies in the Humanities	New Course	This course is an introduction to disability as represented in the arts and humanities.	Spring: Even Years	Spring 2016

REH 7720	2	The Emerging Role of Disability Studies in Academe	New Course	The purpose of this course is to explore the domain of Disability Studies, to understand the limitations of traditional presentations of disability, the epistemological foundations in society, and the place of Disability in civic and academic cultures.	Spring: Odd Years	Spring 2015
SPED 7070	1-3	SPED Grant Writing Internship	Title Change	Previous title did not clearly indicate that this is an internship rather than a didactic course.		Spring 2015

Jon M. Huntsman School of Business

Economics and Finance

Course	Cr.	Title	Type	Details	Offered	Effective
FIN 3200	2	Financial Management (QI)	New Course	This course concentrates on developing tools that will be necessary for financial managers. It covers various topics such as time value of money, risk analysis, asset valuations, financial statement analysis, and financial markets and institutions. Prereqs: MATH 1050, ACCT 2010: choose one statistics course from STAT 1040, 'STAT 2000, STAT 2300, STAT 3000 or PSY 3010, admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits.	Fall, Spring, Summer	Fall 2015
FIN 3400	2	Corporate Finance (QI)	New Course	This course concentrates on decision making of financial managers and other professionals required to make finance-related decisions in a contemporary business environment. Capital budgeting, firm valuation, capital structure and working capital management will be covered. Prereqs: FIN 3200, admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits.	Fall, Spring, Summer	Fall 2015
FIN 4540	3	Real Estate Valuation	New Course	Valuation of income producing properties through income capitalization techniques of direct capitalization, yield capitalization and discounted cash flow analysis. Prereq: FIN 3400, admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits.	Fall	Fall 2015

FIN 4550	3	Real Estate Development	New Course	This course will introduce students to the broad aspects of real estate development from an operations perspective. Topics include the development of residential, hotel, office, retail, land, and industrial properties. Prereq: FIN 3400, admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits.	Spring	Spring 2016
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Management

Course	Cr.	Title	Type	Details	Offered	Effective
MGT 1050	3	Foundations of Business and Leadership	New Course	This is an interdisciplinary course that serves as a gateway into the business school curriculum. This academically rigorous course will serve as a platform to introduce students to the broad cross-section of disciplines that constitute the study of markets, commerce, and leadership, while emphasizing ethical decision making throughout. By design, this course will focus on the role of business in a societal context, with an emphasis on how business can create positive change at the global, industry, and personal levels. Special emphasis will be placed on ethical leadership, international mindfulness, personal development and awareness, strategic planning, and broader empathy.	Fall, Spring, Summer	Fall 2015
MGT 2050	2	Business Law	Title Change, Credit Hour Change	This course has been required of all students seeking a degree in the HSB. It has always been a 3 cr hour course. After examining the content of this course and the other acumen courses, we have concluded that this course would be reduced to two cr hours to avoid instructional redundancy and to sharpen its focus. The business ethics that has traditionally been a part of this course will now be included in the new MGT 1050 course.	Fall, Spring, Summer	Fall 2015

MGT 3700	2	Operations Management	Credit Hour Change	This course has been required of all students seeking a degree in the HSB. It has always been a 3 cr hour course. After examining the content of this course and the other acumen courses, we have concluded that this course would be reduced to two cr hours to avoid instructional redundancy and to sharpen its focus.	Fall, Spring, Summer	Fall 2015
MGT 3890	2	Systems Strategy and Problem Solving	New Course	This course examines the concepts, models, and procedures for identifying and addressing functional level problems and opportunities. Prerequisites: ACCT 2010, ACCT 2020, MIS 2100, MGT 2050, MGT 3500, MGT 3700, FIN 3400; admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits.	Fall, Spring, Summer	Fall 2015
MGT 4530	3	Marketing Research	Prerequisite Change	Added STAT 1045 and STAT 2000	Fall	Fall 2015
MGT 4545	2	Marketing and Sales Technology	Credit Hour Change	The number of credit hours earned for this course have been reduced because the content was streamlined.	Fall, Spring, Summer	Fall 2015
MGT 4570	2	Consumer Choice Modeling	Prerequisite Change	Added STAT 1045 and STAT 2000 as options	Fall, Spring	Fall 2015
MGT 4630	3	Human Resource Strategy	Course Description Change	Integrative human resource course, designed as the last course for graduating senior Human Resource Management minors. Covers current aspects of human resources. Includes case studies, real-world exercises, and team-based projects. Prerequisites: MGT 3110; MGT 3250 with B- or better. Admittance to a USU major, cumulative GPA of 2.67 or higher, completion of at least 40 credits.	Spring	Spring 2016

Management Information Systems

Course	Cr.	Title	Type	Details	Offered	Effective
MIS 3300	3	Big Data Analytics	Prereq Change, Course No. Change	Former: MIS 3860, Course is moving to become part of the business acumen. Course number is being changed to reflect its new position in the acumen. Added MIS 2100 as prereq.	Fall, Spring, Summer	Fall 2015

Other Business

Report of the 4-Year Plan Sub-Committee

(Norm Jones, Nick Morrison, Dean Adams, Janet Anderson, Heidi Kesler)

Proposed Policy:

All departments/colleges must include in their R401-4 (Long Form) and R401-5 (Short Form: New Minor or New Emphasis only) a clear outline of all courses a student must take in order to receive a degree in the proposed program of study. This description must appear in the *Complete Program Description* section which requires "a complete, formal program description as it appears or will appear in the institution's catalog." This complete description must include all general education, university studies, prerequisite, and preparatory courses required. Furthermore, an addendum in the form of a four-year plan, which includes a clear map of all courses, should be submitted for review by the Curriculum Subcommittee and the Education Policy Committee.

Further Discussion:

We also discussed whether a four year plan should be required in the catalog. We are moving the catalog away from "informational" to more "contractual" information. Given this, we have concerns about including 4-year plans in the Catalog. We urge all departments and colleges to utilize the degree audit system, Degree Works, to map their four-year plans. It was suggested that the catalog have links to Degree Works as well as to departmental 4-year plans for each program of study. This discussion is further informed by the accreditation process as outlined by Northwest Commission on Colleges and Universities which states, "Catalogs ... should ... accurately depict: ... c. basic information on programs and courses, with required sequences and frequency of course offerings explicitly stated. d. degree and program completion requirements, including length of time required to obtain a degree or certification of completion"

Request from the Department of Biology to add a new Human Biology emphasis to the existing BS.

Request from the Department of Economics and Finance to create a minor in Real Estate.

Request from the Department of Health, Physical Education, and Recreation to discontinue the School Health emphasis.

Request from the Department of Health, Physical Education, and Recreation to discontinue the School Health Teaching minor.

Request from the Department of Instructional Technology and Learning Sciences to reduce 20 credit hours from the BS to PhD and 17 credit hours from the MS to PhD.

Request from the Department of Plants, Soils, and Climate to change the name of the major in Environmental Soil/Water Science to Land-Plant-Climate Systems.

CURRICULUM SUBCOMMITTEE MINUTES

2 October 2014

A meeting of the Curriculum Subcommittee of the Educational Policies Committee was held on 2 October 2014 at 2 p.m. in Old Main 136 (Champ Hall Conference Room).

Present: Larry Smith, Chair, EPC
Ed Reeve, Chair, College of Agriculture and Applied Sciences
Nicholas Morrison, Caine College of the Arts
Roland Squire, Registrar's Office
Michele Hillard, Secretary
Frank Caliendo, Jon M. Huntsman School of Business
Steve Beck, Graduate Council
Kacy Lundstrom, Libraries
Mike Lyons, College of Humanities and Social Sciences
Karen Mock, S.J. & Jessie E. Quinney College of Natural Resources
Richard Mueller, College of Science
Scott Hunsaker, Emma Eccles Jones College of Education and Human Services
Norm Jones, General Education Subcommittee Chair
Dean Adams, College of Engineering
Betty Hassell, USU-Eastern
Heidi Kesler, Curriculum Retention
Matt Ditto

Absent: Derek Hastings, Graduate Studies Senator
Nathan Straight, Regional Campuses
Scott Bates, Chair, Academic Standards

Visitor: Dawn Kirby, Sr. Assoc. Dean, College of Humanities and Social Sciences
Dennis Dolny, Department Head, Health, Physical Education, and Recreation
Nicholas Flann, Associate Professor, Computer Science
Mehmet Tekerek, Visiting Scholar (Turkey)

Michael Lyons moved to approve the minutes of the 9 September 2014 meeting. Nicholas Morrison seconded; motion approved

College of Agriculture and Applied Sciences

Richard Mueller moved to approve the business of the College of Agriculture and Applied Sciences. Norm Jones seconded; motion approved.

Applied Economics

Course	Cr.	Title	Type	Details	Offered	Effective
APEC 5700/6700	3	Regional and Community Economic Development	Course Description Change	Building on microeconomic theory, models for regional and urban structure and change are explored. Policy decision models based on advances in economic growth and development, economic structure, land-use, public finance, housing, social welfare, and transportation are developed.	Sp	Spring 2016
			Prerequisite Change	Prerequisite: APEC 4010/ECN 4010		
			Dual List	APEC 5850 and APEC 6700 are currently taught as separate courses with the same title. There is considerable overlap in the course content and both are very low enrollment courses. By combining the courses into one dual listed course, students should have an improved course experience and APEC will make more efficient use of departmental resources. Student signing up for the 6700 credit will be required to do an extensive term paper as part of the course requirements.		
APEC 5950	3	Applied Economics Policy Analysis	Title Change	The former course title "Senior Project" and the former course description are not very descriptive of the actual course. The new proposed title and expanded description provide greater detail for this course.	F	Fall 2015

			Course Description Change	This course focuses on the identification and analysis of current agricultural, natural resources and environmental economic policy issues. Throughout this process, other applied economics course concepts and methods are brought together to understand and analyze the policy issues.		
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Nutrition, Dietetics and Food Sciences

Course	Cr.	Title	Type	Details	Offered	Effective
NDFS 1030	1	Introduction to Dietetics	New Course	Overview of Registered Dietitian Nutritionist education pathways and requirements including: educational requirements and options for completion; requirements for acceptance to the Dietetics Programs at USU; requirements including: educational requirements and options for completion; requirements for acceptance to the Dietetics Programs at USU; requirements for Registration by the Commission on Dietetic Registration (CDR). No prerequisites.	F	Fall 2015
NDFS 4490	2	Community Nutrition Experience 1	New Course	Practical experience in community nutrition. Integration and application of material learned in NDFS 4480. Corequisite: NDFS 4480.	F	Fall 2015
NDFS 5170/6170	1-3	Food Safety & Quality	Credit Hour Change	The workshops that make up this course can be taken separately depending upon which semester they're available.	Su	Summer 2015
NDFS 5230	3	Communicating Current Topics in Nutrition	Add University Studies Designation	Add (CI) designation. Expected Max Students per section: 30. Major requirement for NS & DD. Course is cross listed with NDFS 6230. Approved at 9/16/14 Gen Ed	Sp	Spring 2015

Plant Soils and Climate

Course	Cr.	Title	Type	Details	Offered	Effective
PSC 3800	3	Fundamentals of Organic Agriculture	Prerequisite Change	Add "PSC 3000 Fundamentals of Soil Science" as a new	Sp	Summer 2015

				prerequisite.		
			Course No. Change	Change the course number from 2800 to 3800		

Caine College of the Arts

Nicholas Morrison moved to approve the business of the Caine College of the Arts. Richard Mueller seconded; motion approved.

Course	Cr.	Title	Type	Details	Offered	Effective
MUSC	3	Rock & Roll: Catalyst for Social Change	Add University Studies Designation	Add (DHA) designation. Max enrollment per term: 150. Not a major requirement. Approved at 9/16/14 Gen Ed	F, Sp	Fall 2014

Jon M. Huntsman School of Business

Frank Caliendo moved to approve the business of the Jon M. Huntsman School of Business. Richard Mueller seconded; motion approved.

Accounting

Course	Cr.	Title	Type	Details	Offered	Effective
ACCT 4300	3	Accounting Internship	Course Description Change	Provides accounting internship experience in a career-related position approved by the School of Accountancy. Prerequisite: Admittance to a USU major; cumulative GPA of 2.67 or higher; and completion of at least 40 credits. Instructor approval required.	F, Sp, Su	Spring 2015
ACCT 6300	3	Advanced Accounting Internship	Course Description Change	Provides accounting internship experience in a career-related position approved by the School of Accountancy. Restriction: Instructor approval required.	F, Sp, Su	Spring 2015

Emma Eccles Jones College of Education and Human Services

Scott Hunsaker moved to approve the business of the Emma Eccles Jones College of Education and Human Services. Nicholas Morrison seconded; motion approved.

COMMDDE

Course	Cr.	Title	Type	Details	Offered	Effective
COMD 7710	3	Evidence-Based Practice in Audiology	New Course	Discussion of evidence-based practice in hearing and balance disorders, including existing research base, areas in need of further research, and issues related to implementation in practice.	F, Sp, Su	Spring 2015
COMD 7730	3	Advanced Topics in Audiology	New Course	Discussion of advanced topics and issues in hearing and balance disorders, including assessment and treatment considerations, underlying influences related to treatment adherence, and functional outcomes.	F, Sp, Su	Spring 2015
COMD 7740	3	Research in Audiology	New Course	Under faculty direction, students read and discuss current research in audiology, examine methods used, and limitations.	F, Sp, Su	Spring 2015
COMD 7880	2	Research Methods in Audiology	New Course	Discussion of common research methods used in audiological research and design considerations	F, Sp, Su	Spring 2015
COMD 7890	1	Journal Reading–Audiology	New Course	Under faculty direction, students read and discuss published research. Students learn to critique empirical and theoretical papers as well as current research findings in important areas of Audiology.	F, Sp, Su	Spring 2015

HPER

Course	Cr.	Title	Type	Details	Offered	Effective
HEP 3800	3	Health Care Systems	New Course	The course reviews the history of how the U.S. health care system was developed and explores the complexities of various delivery systems including: providers, accessibility, quality of care, healthcare financing, insurance carriers, etc.	F	Fall 2015

HEP 4000	3	Health Services Administration	New Course	This course explores the management, general environment, types and structures of health services organizations and systems. The course also reviews the manager's role in ethical and legal concerns, problem solving, the "quality" environment, and marketing and allocating resources.	Sp	Spring 2015
HEP 4800	3	Human Diseases	New Course	The course explores the body systems and common diseases that afflict them. Risk factors are identified with a focus on risk reduction and the implementation of health promotion strategies in order to prevent or intervene in the disease process.	F, Sp	Spring 2015
HEP 5200	3	Foundations of Global Health	Course Description Change/Title Change	The purpose of this course is to provide an introduction to health promotion practice and public health from a global perspective.		Spring 2015
PE 1080	1	Crossfit	New Course	Crossfit workouts incorporate elements from high-intensity interval training, Olympic Lifting, plyometrics, powerlifting, gymnastics, kettlebell lifting, calisthenics, and other exercises. Repeatable, P/F	F, Sp, Su	Spring 2015
PEP 6860	2	Motor Development	New Course	A study of the progressive change in movement behavior from infancy through older adulthood. Emphasis upon developing the ability to identify the stages in a variety of motor skills, physical growth patterns and biological maturity and the relationship of each to motor performance.	Sp (alternate years)	Spring 2015

PEP 7870	2	Advanced Motor Behavior Seminar	New Course	This course provides students with advanced study and understanding of principles underlying general motor control. Emphasis will be placed on the theoretical bases of motor control and motor change occurring via learning and adaptation as it relates to movement variability, motivation, and ergonomics. Prerequisites: PEP 6840 and PEP 6860.	F (alternate years)	Spring 2015
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Psychology

Course	Cr.	Title	Type	Details	Offered	Effective
PSY 3010	4	Psychological Statistics (QI)	Prerequisite Change	Add STAT 1045 as prerequisite in addition to STAT 1040 "STAT 1040 OR STAT 1045"	F, Sp, Su	Summer 2015

Teacher Education and Leadership

Course	Cr.	Title	Type	Details	Offered	Effective
TEPD 5300	1-6	Workshop in Mathematics Education	Add Multiple List	TEAL 6300	F, Sp, Su	Spring 2015
TEPD 5300			Course Description Change	Exploration of current topics and methods in mathematics education. In the past, topics have included: Common Core mathematics content, relevant mathematics in rural settings, integration of mathematics and children's literature.		
TEAL 5480		Methods and Materials in Gifted Education	Delete Course (remove dual list)	Remove dual list with TEAL 6480; then delete course. Course duplicates content of TEPD 5480		Spring 2015
TEAL 5490		Practicum: Gifted Strategies Applications	Delete Course (remove dual list)	Remove dual list with TEAL 6490; then delete course. Course duplicates content of TEPD 5490		Spring 2015
TEAL 6300	1-6	Workshop in Mathematics Education	Course Description Change	Exploration of current topics and methods in mathematics education. In the past, topics have included: Common Core mathematics content, relevant mathematics in rural settings, integration of mathematics and children's		

				literature.		
TEAL 6300			Add Multiple List	TEPD 5300		
TEAL 6320	3	Theories and Models of Literacy	Title Change	needs to have the same title as TEAL 7320	Sp	Spring 2015
TEAL 6480	2	Methods and Materials in Gifted Education	Course Description/Prerequisite Change	Explores instructional and management models in gifted education. Requires development of instructional materials for use with gifted students. Corequisite: TEAL 6490	F, Sp, Su	Summer 2015
TEAL 6490	1	Practicum: Gifted Strategies Applications	Course Description Change	Instructional models and materials used in gifted education are applied to the classroom setting. Corequisite: TEAL 65480. P/F	F, Sp, Su	Spring 2015
TEPD 5435	2	Curriculum Development in the Education of Gifted and Talented Learners for Professional Educators	New Course	Explores curriculum models used in gifted education and the relationship between core curriculum and curriculum for gifted level learners. Requires development of curricular materials for use with gifted students. Corequisite: TEPD 5445	F, Sp, Su	Spring 2015
TEPD 5445	1	Practicum: Curriculum Writing in the Education of Gifted and Talented Learners by professional Educators	New Course	Requires application of models used in curriculum for gifted and talented learners to the writing of curriculum materials for use in classrooms with gifted and talented students. Corequisite: TEPD 5435. P/F	F, Sp, Su	Spring 2015

TEPD 5455	1	Practicum: Gifted Social and Emotional Needs Application for Professional Educators	Grade Type	P/F	F, Sp, Su	Spring 2015
TEPD 5480	2	Methods and Materials in Gifted Education for Professional Educators	Course Description Change	Explores instructional and management models in gifted education. Requires development of instructional materials for use with gifted students. Corequisite: TEPD 5490	F, Sp, Su	Spring 2015
TEPD 5490	1	Practicum: Gifted Strategies Applications for Professional Educators	Course Description Change	Instructional models and materials used in gifted education are applied to the classroom setting. Intended for practicing teachers. Corequisite: TEPD 5480. P/F	F, Sp, Su	Spring 2015

College of Engineering

Dean Adams moved to approve the business of the College of Engineering. Norm Jones seconded; motion approved.

Civil and Environmental Engineering

Course	Cr.	Title	Type	Details	Offered	Effective
CEE 2620	3	Environmental Engineering Microbiology	New Course	Foundations of environmental microbiology with emphasis on environmental engineering applications. Topics include: metabolism, classification, methods for growing and enumerating microorganisms, biogeochemical cycling of nutrients, pathogens in environmental media, indicator organisms, treatment of water and wastewater, and applications of microbial ecology to treating hazardous pollutants. Prerequisites: BIOL 1010, CHEM 1220	Sp	Spring 2015

CEE 3870	2	Professional/Technical Writing in Civil and Environmental Engineering	Delete Course	This was a course that we thought was deleted a while ago. We no longer teach it and have replaced it with ENGR 3080.		Spring 2015
CEE 5220/6220	3	Traffic Engineering	Prerequisite Change	Prerequisite: CEE 3210 and Admitted to the Professional Program.	Sp	Summer 2015
CEE 5240/6240	3	Urban and Regional Transportation Planning	Prerequisite Change	Prerequisites: CEE 3210 and Admitted to the Professional Program.	F	Fall 2015

Electrical and Computer Engineering

Course	Cr.	Title	Type	Details	Offered	Effective
ECE 3710	4	Microcontroller Hardware and Software	Prerequisite Change	Replace ECE 2250 for ECE 2290 because knowledge of the material in ECE 2250 instead of ECE 2290 is sufficient for entrance into ECE 3710	F	Fall 2015

Engineering

Course	Cr.	Title	Type	Details	Offered	Effective
ENGR 1500	1	Experience for Undergraduate Students	New Course	Students work as undergraduate research assistants under a faculty mentor. Through the course, students will learn and apply data collection, analysis, synthesis, and presentation skills specific to the research project. Repeatable for credit.	F, Sp, Su	Spring 2015
ENGR 3500	1	Research Experience for Undergraduate Students	New Course	Students work as undergraduate research assistants under a faculty mentor. Through the course, students will learn and apply data collection, analysis, synthesis, and presentation skills specific to the research project. Prerequisites: Admission to the Professional Program Repeatable for credit.	F, Sp, Su	Spring 2015

Mechanical & Aerospace Engineering

Course	Cr.	Title	Type	Details	Offered	Effective
MAE 5900	3	Cooperative Practice	Grade Type Change	The methods of evaluation are appropriate as a pass/fail course.	F, Sp, Su	Spring 2015

College of Humanities and Social Sciences

Michael Lyons moved to approve the business of the College of Humanities and Social Sciences. Nicholas Morrison seconded; motion approved.

History

Course	Cr.	Title	Type	Details	Offered	Effective
HIST 3000	3	History Research Methods	Course No. Change	Previous: HIST 4989 this course will better serve our majors as the introductory course for our students beginning their upper-level course work. History is working to move our students through the major in a more thoughtful, directed manner.	F, Sp	Summer 2015
HIST 4990	3	Special Topics in History	Prerequisite Change	Prerequisite: HIST 3000 and Senior Standing	F, Sp, Su	Summer 2015

Language, Philosophy and Communication Studies

Course	Cr.	Title	Type	Details	Offered	Effective
CMST 4250	1-6	Advanced Internship	Course Description Change/Repeatable	Internship or cooperative education at a more professional level, with increased complexity, approved by the department and advisor. Internship project and number of credits must be approved by advisor. Course is repeatable up to a combined total of six credit hours.	F, Sp, Su	Spring 2015

Political Science

Course	Cr.	Title	Type	Details	Offered	Effective
POLS 6050	3	Qualitative Methods	New Course	This course offers an introduction to qualitative methods at the graduate level. It provides theoretical frameworks and practical knowledge and skills for conducting independent, robust political science projects that can be applied in different settings, issue-areas, and cultural terrains.	? (alternate years)	Spring 2015

POLS 6210	3	International Security	Title Change	The dept. has altered the description of the graduate program to provide greater clarity and better reflect the strengths of the current faculty. The name change denotes 6210 as a core class in the revamped curriculum and highlights to student that contemporary security issues encompass more than war and peace.	Sp (alternate years)	Spring 2015
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S. J. and Jessie E. Quinney College of Natural Resources

Karen Mock moved to approve the business of the S.J. & Jessie E. Quinney College of Natural Resources. Richard Mueller seconded; motion approved.

Environment and Society

Course	Cr.	Title	Type	Details	Offered	Effective
ENVS 4110/ 6110	3	Human Dimensions of Wildlife Management	Title Change	Previous title: Fish and Wildlife Policy and Administration.	F	Fall 2015

Wildland Resources

Course	Cr.	Title	Type	Details	Offered	Effective
WILD 1800	3	Introduction to Geographic Information Science	Course Description Change	Introduces students to background and theory behind geographic information systems and spatial analysis. Students learn to integrate and analyze spatial information from different geographic sources. Includes a weekly laboratory section.	F, Sp	Spring 2015

College of Science

Richard Mueller moved to approve the business of the College of Science. Scott Hunsaker seconded; Motion approved.

Geology

Course	Cr.	Title	Type	Details	Offered	Effective
GEO 5490/ 6490	3	Facies Analysis of Sedimentary Rocks	New Course	This course will cover topics including sedimentary processes and results, contacts, facies analysis, sequence stratigraphy, and implications of sedimentologic studies. Lectures, field trips, literature review, and geologic writing will be	Sp (alternate years)	Spring 2015

				emphasized, with 6000 level credit earned through student presentations and a semester project. Prerequisite: GEO 3550		
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Addition: College of Science Course: CHEM 6730 reduce credits from 3 to 2

Motion to approve the addition of CHEM 6730 made by Richard Mueller. Scott Hunsaker seconded; motion approved.

Curriculum Subcommittee Agenda
October 2, 2014
(Addendum)

Motion to approve Dean Adams seconded by Norm Jones

The motion to Amend the addendum was made by Scott Hunsaker and seconded by Nicholas Morrison. Approval is pending review by the Curriculum College Committees.

Division of the House made by Scott Hunsaker requesting a vote.

In favor of College Curriculum approval - 8

Not in favor of College Curriculum approval - 5

Motion to approve passed.

CCA Curriculum has already approved the motion for their college.

The following courses currently have STAT 1040 as a prerequisite. It is proposed that STAT 1045 (newly approved course) be added so that the prerequisite reads: "STAT 1040 **or** STAT 1045"

Course	Department	College	Effective
ASTE3600	Agricultural Systems Technology and Education	CAAS	Spring 2015
NDFS4420	Nutrition, Dietetics and Food Sciences	CAAS	Spring 2015
NDFS5200	Nutrition, Dietetics and Food Sciences	CAAS	Spring 2015
NDFS5210	Nutrition, Dietetics and Food Sciences	CAAS	Spring 2015
NDFS6200	Nutrition, Dietetics and Food Sciences	CAAS	Spring 2015
NDFS6210	Nutrition, Dietetics and Food Sciences	CAAS	Spring 2015
PSC 4600	Plants, Soils and Climate	CAAS	Spring 2015
MUSC4320	Music	CCA	Spring 2015
JCOM2020	Journalism and Communication	CHaSS	Spring 2015
PHIL2200	Languages, Philosophy and Communication Studies	CHaSS	Spring 2015
POLS3000	Political Science	CHaSS	Spring 2015
ANTH5250	Sociology, Social Work and Anthropology	CHaSS	Spring 2015
ANTH6250	Sociology, Social Work and Anthropology	CHaSS	Spring 2015
SOC 3120	Sociology, Social Work and Anthropology	CHaSS	Spring 2015
FCHD3130	Family, Consumer, and Human Development	EEJCEHS	Spring 2015
HEP 4200	Health, Physical Education and Recreation	EEJCEHS	Spring 2015
PRP 3050	Health, Physical Education and Recreation	EEJCEHS	Spring 2015
PSY 3010	Psychology	EEJCEHS	Spring 2015
ACCT2010	Accounting	HSB	Spring 2015
BUS 3400	Business	HSB	Spring 2015
FIN 3400	Economics and Finance	HSB	Spring 2015
MGT 4530	Management	HSB	Spring 2015
MGT 4570	Management	HSB	Spring 2015

Signatures:

College of Agriculture and Applied Science

Caine College of the Arts

College of Humanities and Social Sciences

Emma Eccles Jones College of Education and Human
Services

Jon M. Huntsman School of Business

Other Business

Request from the Department of Computer Science to reduce the number of PhD credits.
(see attachment)

Motion to approve made by Dean Adams. Richard Mueller seconded; motion approved.
Nick Flann was present to answer questions.

Request from the Department of Geology to discontinue the current BS in Applied Environmental Geoscience
and create an emphasis in Applied Environmental Geoscience in the existing BS.
(see attachment)

Motion to approve made by Richard Mueller. Norm Jones seconded; motion approved.
One error noted on last page (4-year plan). New proposal with corrections/update will be sent to Larry Smith to
proceed through the approval process. Dean Adams is asking for more consistency in the catalog and should
include the Gen Ed courses as well. Heidi Kesler will be meeting with Associate Deans to discuss catalog
consistency. Before going to Board of Trustees we should revise the proposal to include University studies.

Request from the Department of Mechanical and Aerospace Engineering to offer a PhD in Aerospace
Engineering. (see attachment)

Motion to approve made by Dean Adams. Richard Mueller seconded; motion approved.

Dean Adams moved for discussions for standardization of degrees. It was recommended that we include Gen
Ed courses in the catalog as part of majors' information. This would be beneficial in letting us know the
numbers taking and participating in those courses. Also would serve as a reminder that Gen Ed courses should
be taken earlier than later. Heidi Kesler will begin working on standardization of degree work. The timeline for
this becoming effective would be spring 2015.

The curriculum committee will look at a sample template at next month's meeting. Keep template flexible.
Set up a subcommittee of this committee to bring things forward. Committee shall consist of Heidi Kesler,
Norm Jones, Dean Adams, and Nicholas Morrison.

Norm Jones withdrew the motion pending follow-up.

Meeting adjourned at 2:47 pm.

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: *Utah State University*

Proposed Title:

Currently Approved Title:

School or Division or Location:

Department(s) or Area(s) Location: *Department of Computer Science, College of Engineering*

Recommended Classification of Instructional Programs (CIP) Code¹ (for new programs):

Current Classification of Instructional Programs (CIP) Code (for existing programs): *11.07*

Proposed Beginning Date (for new programs): *upon approval*

Institutional Board of Trustees' Approval Date:

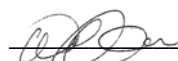
Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
<i>R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar</i>		
SECTION NO.		ITEM
5.1.1	<input type="checkbox"/>	Minor*
5.1.2	<input type="checkbox"/>	Emphasis*
5.2.1	<input type="checkbox"/>	(CER P) Certificate of Proficiency*
5.2.3	<input type="checkbox"/>	(GCR) Graduate Certificate*
5.4.1	<input type="checkbox"/>	New Administrative Unit
	<input type="checkbox"/>	Administrative Unit Transfer
	<input type="checkbox"/>	Administrative Unit Restructure
	<input type="checkbox"/>	Administrative Unit Consolidation
5.4.2	<input type="checkbox"/>	Conditional Three-Year Approval for New Centers, Institutes, or Bureaus
5.4.3	<input type="checkbox"/>	New Center
	<input type="checkbox"/>	New Institute
	<input type="checkbox"/>	New Bureau
5.5.1	<input type="checkbox"/>	Out-of-Service Area Delivery of Programs
5.5.2	<input type="checkbox"/>	Program Transfer
	<input checked="" type="checkbox"/>	Program Restructure
	<input type="checkbox"/>	Program Consolidation
5.5.3	<input type="checkbox"/>	Name Change of Existing Programs
5.5.4	<input type="checkbox"/>	Program Discontinuation
	<input type="checkbox"/>	Program Suspension
5.5.5	<input type="checkbox"/>	Reinstatement of Previously Suspended Program
	<input type="checkbox"/>	Reinstatement of Previously Suspended Administrative Unit

**Requires "Section V: Program Curriculum" of Abbreviated Template*

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.



Signature

Date: *09/04/2014*

Printed Name: *Nicholas S. Flann*

¹ CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

Program Request - Abbreviated Template
Utah State University
Ph.D. Computer Science
09/01/2014

Section I: Request

The Computer Science Department requests to reduce the total minimum number of credit hours required to complete a Ph.D. to 70 hours, a reduction from the current value of 90. The change is motivated by the desire to bring USU Computer Science in line with other Ph.D. programs within the College of Engineering and with other CS Ph.D. programs at peer institutions, which require no more than 72 hours. We anticipate that this change will increase the competitiveness and effectiveness of our PhD program while having a minimal impact on aggregate instructional activities since reductions in credit hours per student will be offset by an increasing PhD program and student enrollment in classes.

<i>All numbers are minimum credit hours</i>	Existing Ph.D. Program		New Proposed Ph.D. program	
	without MS	with MS	without MS	with MS
7000 level CS	12	12	9	9
Awarded from MS	0	30 (fixed)	0	0 to 30
Seminar CS7900	2	2	2	2
Dissertation	27	27	18	18
Additional courses	33	3	21	3
Remaining courses/dissertation			20	38 – (hours awarded from MS)
Minimum Total	90	90	70	70

There are three principal areas of change: a) the number of minimum dissertation credits is reduced by 9 hours, b) the minimum number of PhD classes is reduced by one class, c) satisfying the remaining credits needed becomes more flexible.

Section II: Need

Computer Science is one of the fastest growing job markets in the world, increasing the demand for graduates at BS, MS and PhD levels. New graduates in the USU CS department are experiencing multiple job offers at salaries higher than previous years. Significantly, this trend also applies to the PhD level principally because computer-related companies (such as Microsoft, Amazon, Google, Apple etc.) have growing internal research labs that seek PhDs to lead research and development of future products. Research shows that more than half of PhD graduates work in industry rather than academia ([Taulbee Survey](http://cra.org/resources/taulbee/) <http://cra.org/resources/taulbee/>)

According to the Computing Research Association annual [Taulbee Survey](http://cra.org/resources/taulbee/), Computer Science programs around the country are producing more PhDs than ever before, but increasing demand has kept pace and this additional supply has not diminished employment or salary. Indeed, the [Taulbee Survey](http://cra.org/resources/taulbee/) reports an almost 100% placement and employment of PhDs in professional jobs. Salaries available from the [Bureau of Labor Statistics](http://www.bls.gov/ooh/computer-and-information-technology/home.htm) (<http://www.bls.gov/ooh/computer-and-information-technology/home.htm>) give the median salary for computer research scientists at \$100,800 and tenure-track assistant professors at \$85,000 (for smaller public universities) and \$100,000 (for large private universities).

In response to these rapid changes and positive future prospects the USU CS PhD program needs to modernize to become more competitive, efficient and tailored to current and future market conditions. The principal problem with the current program is that it takes too long to complete because of unnecessary and burdensome requirements. Specifically, the current minimum 90 credit hour requirement is outdated and exceptionally high compared to peer institutions within the intermountain region and around the country as summarized below (click on the university name to review the complete requirements, or follow the link in the next table):

University
University of Utah
BYU
Montana State Univ.
University of Nevada
Univ. of Pittsburgh
Virginia Commonwealth Univ.
UNC Charlotte
Iowa State Univ.

This reduction in credit hours to 70 brings the USU program into the range of peer institutions and combined with the new streamlined exam and student evaluation procedures (discussed below), will increase the effectiveness and PhD productivity of the department, but not diminish the quality of the PhD product. In fact, it is anticipated that a process more focused on productivity than credit hours will increase the quality of our PhDs.

University
University of Utah
BYU
Montana State Univ.
University of Nevada
Univ. of Pittsburgh
Virginia Commonwealth Univ.
UNC Charlotte
Iowa State Univ.

In tandem with this proposed change, the CS department has implemented a new [exam schedule](http://cs.usu.edu/htm/ph-d-examination-policy/) (<http://cs.usu.edu/htm/ph-d-examination-policy/>) and is introducing a new annual evaluation policy of PhD student's productivity similar to the procedure for faculty evaluations. Students enter data describing their research, teaching and service contributions into a digital measure-like system and are then ranked using a published rubric. Student progress is reviewed by the departmental graduate committee and anonymized data is presented to the faculty, enabling faculty to identify poor and excellent students. The department then recognizes excellent students with awards during the annual graduate student reception. Students making unacceptable progress will be warned their first year and then if no improvement is made the second year, departmental support will be withdrawn.

Section III: Institutional Impact

It is anticipated that this change will enable the CS department to increase enrolment within the CS PhD program while maintaining or increasing admission standards because we will be offering a more competitive product.

No change in administrative structure will be required.

The CS department is growing in faculty and in students so it is anticipated that planned and actual new hires in faculty will fully support these proposed changes in the PhD program. No new staff will be needed.

Current facilities will continue to be adequate.

Section IV: Finances

We anticipate no major cost increases or savings from this change.

In addition to those standard procedures in place for PhD and plan A MS students, faculty in the CS department include monies for tuition awards in their grant proposals as required by the COE.

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: Utah State University

Proposed Title: B.S. in Geology with Applied Environmental Geoscience Emphasis (new emphasis)

Currently Approved Title: B.S. in Applied Environmental Geoscience (to be discontinued)

School or Division or Location: College of Science

Department(s) or Area(s) Location: Geology

Recommended Classification of Instructional Programs (CIP) Code² (for new programs): 40.0601

Current Classification of Instructional Programs (CIP) Code (for existing programs): 40.0699

Proposed Beginning Date (for new programs): 01/07/2015

Institutional Board of Trustees' Approval Date:

Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
<i>R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar</i>		
SECTION NO.		ITEM
5.1.1	<input type="checkbox"/>	Minor*
5.1.2	<input checked="" type="checkbox"/>	Emphasis*
5.2.1	<input type="checkbox"/>	(CER P) Certificate of Proficiency*
5.2.3	<input type="checkbox"/>	(GCR) Graduate Certificate*
5.4.1	<input type="checkbox"/>	New Administrative Unit
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	<input type="checkbox"/>	Administrative Unit Restructure
	<input type="checkbox"/>	Administrative Unit Consolidation
5.4.2	<input type="checkbox"/>	Conditional Three-Year Approval for New Centers, Institutes, or Bureaus
5.4.3	<input type="checkbox"/>	New Center
	<input type="checkbox"/>	New Institute
	<input type="checkbox"/>	New Bureau
5.5.1	<input type="checkbox"/>	Out-of-Service Area Delivery of Programs
5.5.2	<input type="checkbox"/>	Program Transfer
	<input type="checkbox"/>	Program Restructure
	<input type="checkbox"/>	Program Consolidation
5.5.3	<input type="checkbox"/>	Name Change of Existing Programs
5.5.4	<input checked="" type="checkbox"/>	Program Discontinuation
	<input type="checkbox"/>	Program Suspension
5.5.5	<input type="checkbox"/>	Reinstatement of Previously Suspended Program
	<input type="checkbox"/>	Reinstatement of Previously Suspended Administrative Unit

*Requires "Section V: Program Curriculum" of Abbreviated Template

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

² CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

Program Request - Abbreviated Template
Utah State University
Bachelor of Science in Geology with an Applied Environmental Geoscience Emphasis
08/22/2014

Section I: Request

This request is to discontinue the current Bachelor of Science degree in Applied Environmental Geoscience and instead create an emphasis in Applied Environmental Geoscience in the existing Bachelor of Science degree in Geology.

Section II: Need

The Bachelor of Science (BS) in Applied Environmental Geoscience (AEG) has been in place for more than four years, but very few students have chosen to pursue this degree. From interviews with these students as well as other Geology majors, a serious concern that has been expressed is the value of the AEG degree, both in terms of its employability following graduation and its desirability for prospective graduate programs. Consequently, the Department of Geology at Utah State University has decided to discontinue the BS in AEG and instead offer an AEG emphasis in the existing BS in Geology due to the professional recognition of USU's Geology BS that already exists among both potential employers and other institutions of higher education that offer graduate degrees in the Earth and Geological Sciences.

Furthermore, because of concerns expressed by AEG majors during interviews regarding some of the elective courses for the BS in AEG, the Department of Geology has reassessed the curriculum and has made changes to the electives for the AEG emphasis in the BS in Geology that will make it more beneficial and attractive to students, and thus more enticing to potential majors. Please note, however, that the total number of credit hours required for both the BS in AEG and the AEG emphasis in the BS in Geology is exactly the same.

Finally, while the current AEG majors will be accommodated to allow completion of their degrees according to the existing requirements after the program is discontinued, all of the students interviewed have expressed their desire to switch to the AEG emphasis in Geology if it is approved for the reasons described above.

Section III: Institutional Impact

The proposed change is not anticipated to affect enrollments in any other instructional programs of affiliated departments or programs, nor will the proposed change affect any existing administrative structures. No changes in faculty or staff will be required, nor will any new physical facilities or modification to existing facilities be required. No equipment will need to be committed to initiate this change.

Section IV: Finances

The proposed change is not anticipated to result in any costs or savings to the Geology Department, College of Science, or Utah State University, nor are any budgetary impacts on other programs or units within Utah State University anticipated.

Section V: Program Curriculum

All Program Courses (with New Courses in Bold)

Course Prefix and Number	Title	Credit Hours
Required Courses	GEO 1110 - Physical Geology	3
	GEO 1115 - Physical Geology Laboratory	1
	GEO 3200 - Earth Through Time	4
	GEO 3500 - Minerals and Rocks	4
	GEO 3550 - Sedimentation and Stratigraphy	4
	GEO 3600 - Geomorphology	4
	GEO 3700 - Structural Geology	4
	GEO 4700 - Geologic Field Methods	3
	GEO 5200 - Geology Field Camp	5
	GEO 5600 - Geochemistry	3
	CHEM 1210 - Principles of Chemistry I	4
	CHEM 1215 - Principles of Chemistry Lab I	1
	CHEM 1220 - Principles of Chemistry II	4
	CHEM 1225 - Principles of Chemistry Lab II	1
	MATH 1210 - Calculus I	4
	STAT 3000 - Statistics for Scientists	3
	PHYS 2210 - Physics for Sci and Engr I	4
	PHYS 2215 - Physics for Sci and Engr Lab I	1
	BIOL 1610 - Biology I	4
	BIOL 1620 - Biology II	4
	GEOG 1800 - Intro to GIS	3
Sub-Total		68
Elective Courses	PSC 3000 - Fundamentals of Soil Sci and	4
	PSC 5130 – Soil Genesis, Morph, and Class	4
	OR	
	WATS 3700 – Fund of Watershed Sci and	3
	WATS 4490 – Small Watershed Hydrology	4
	GEO 5630 – Geologic Image Analysis or	3
	WATS 4930 – Adv GIS and Spatial Anal or	3
	WATS 5003 – Remote Sensing Land Surf or	4
	WILD 5750 – Applied Remote Sensing	3
	BIOL 2220 – General Ecology or	3
	CHEM 3650 – Environmental Chemistry or	3
	PSC 3820 – Climate and Climate Change	3
Sub-Total		13 - 15
Track/Options (if applicable)		
Sub-Total		
*(This is the same number of credits as the BS in AEG)	Total Number of Credits	81 - 83

Program Schedule

Freshman Year

Fall Semester (13 credits)

GEO 1110 - Physical Geology (4)
GEO 1115 - Physical Geology Laboratory (1)
CHEM 1210 - Principles of Chemistry I (4)
CHEM 1215 - Principles of Chemistry Laboratory I (1)
MATH 1210 - Calculus I (4)

Spring Semester (16 credits)

GEO 3200 - Earth through Time (4)
GEO 3500 - Minerals and Rocks (4)
CHEM 1220 - Principles of Chemistry II (4)
CHEM 1225 - Principles of Chemistry Laboratory II (1)
STAT 3000 - Statistics for Scientists (3)

Sophomore Year

Fall Semester (16 credits)

GEO 3550 - Sedimentation and Stratigraphy (4)
GEOG 1800 - Introduction to Geographic Information Systems (3)
PHYS 2210 - Physics for Science and Engineering I (4)
PHYS 2215 - Physics for Science and Engineering Laboratory I (1)
BIOL 1610 - Biology I (4)

Spring Semester (13 credits)

GEO 3700 - Structural Geology (4)
PHYS 2220 - Physics for Science and Engineering II (4)
PHYS 2225 - Physics for Science and Engineering Laboratory II (1)
BIOL 1620 - Biology II (4)

Junior Year

Fall Semester (7 credits)

GEO 3600 - Geomorphology (4)
GEO 4700 - Geologic Field Methods (3)

Spring Semester (6 - 7 credits)

PSC 3000 - Fundamentals of Soil Science (4) **or**
WATS 3700 - Fundamentals of Watershed Science (3)
BIOL 2220 - General Ecology (3) **or**
CHEM 3650 - Environmental Chemistry (3) **or**
PSC 3820 - Climate and Climate Change (3)

Summer Semester (5 credits)

GEO 5200 - Geology Field Camp (5)

Senior Year

Fall Semester (0 - 7 credits)

PSC 5130 - Soil Genesis, Morphology, and Classification (4) (if PSC 3000 taken in previous spring)
WILD 5750 - Applied Remote Sensing (3) (if neither WATS 4930 nor WATS 5003 taken in following spring)

Spring Semester (0 - 8 credits)

WATS 4490 - Small Watershed Hydrology (4) (if WATS 3700 taken in previous spring)
WATS 4930 - Advanced GIS and Spatial Analysis (3) **or**
WATS 5003 - Remote Sensing of Land Surfaces (4) (if WILD 5750 not taken in fall)

Cover/Signature Page – Full Template

Institution Submitting Request: Utah State University

Proposed Title: PhD Degree in Aerospace Engineering

School or Division or Location: College of Engineering

Department(s) or Area(s) Location: Mechanical and Aerospace Engineering

Recommended Classification of Instructional Programs (CIP) Code³ : 14.0201

Proposed Beginning Date: 08/01/2015

Institutional Board of Trustees' Approval Date: MM/DD/YEAR

Proposal Type (check all that apply):

Regents' Agenda Items		
R401-4 and R401-5 Approval by Committee of the Whole		
SECTION NO.		ITEM
4.1.1	<input type="checkbox"/>	(AAS) Associate of Applied Science Degree
4.1.2	<input type="checkbox"/>	(AA) Associate of Arts Degree
	<input type="checkbox"/>	(AS) Associate of Science Degree
4.1.3	<input type="checkbox"/>	Specialized Associate Degree
4.1.4	<input type="checkbox"/>	Baccalaureate Degree
4.1.5	<input type="checkbox"/>	K-12 School Personnel Programs
4.1.6	<input type="checkbox"/>	Master's Degree
4.1.7	<input checked="" type="checkbox"/>	Doctoral Degree
5.2.2	<input type="checkbox"/>	(CER C) Certificate of Completion
5.2.4	<input type="checkbox"/>	Fast Tracked Certificate

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date:

Printed Name:

R 401 Executive Summary
Utah State University
PhD Degree in Aerospace Engineering
Department of Mechanical and Aerospace Engineering
August 2014

Program Description

The Department of Mechanical and Aerospace Engineering (MAE) at USU seeks to offer a new PhD (Doctor of Philosophy) degree program in Aerospace Engineering to complement the current MS in Aerospace Engineering and the current MS and PhD programs in Mechanical Engineering. Aerospace Engineering is the primary branch of engineering associated with design, construction, testing, and technology development for all types of flying vehicles including airplanes, rockets, missiles, and spacecraft. Currently, the PhD in Mechanical Engineering degree is being used to accommodate both mechanical and aerospace engineering graduate students who successfully complete the Mechanical Engineering doctoral program. The proposed new degree program will establish a separate degree path for aerospace engineering graduate students and attract new students that specifically desire a PhD graduate degree in Aerospace Engineering. This can be accomplished without any change to our current faculty, staff, and coursework.

Role and Mission Fit

The proposed PhD graduate degree program in Aerospace Engineering is consistent with the role of USU as set forth in Regent's Policy R312. The PhD in Aerospace Engineering will support the Regent's mission for a doctoral granting institution *"through discovery, creation, and transmission of knowledge through a graduate educational program."* More specifically, Regent's Policy R312-4.1.2 states that *"the mission of Utah State University is to be one of the nation's premier student centered land grant and space grant universities by fostering the principle that academics come first; by cultivating diversity of thought and culture; and by serving the public through learning, discovery, and engagement."* Additionally, the proposed program is complementary to ongoing research at the Space Dynamics Lab (SDL). In a letter of support from the USU Research Foundation (USURF), President Scott Hinton states that *"USURF and SDL would welcome and encourage an Aerospace PhD at USU. We think that the program you are proposing would complement and support much of the work that is the core of SDL's business."*

Faculty

The MAE department has 16 tenured and tenure-track faculty members, all with doctoral degrees. Eight faculty members, including four with doctoral degrees in Aerospace Engineering, have expertise directly related to the proposed aerospace engineering program as well as current research projects in aerospace that will support the proposed PhD degree program.

Labor Market Demand

Nearly 80,000 engineers are currently employed in aerospace, significantly higher than the number employed in computer hardware, nuclear engineering, biomedical engineering or chemical engineering, among other fields. (IEEE, <http://www.todaysengineer.org/2012/may/career-focus.asp>) Over the decade from 2012 to 2022, the Bureau of Labor Statistics projects a 7% growth in employment for aerospace engineers. Overall, Utah is one of the top ten states in the nation in the concentration of aerospace employment. Given the large concentration of aerospace industries in Utah, USU graduates with a PhD in aerospace engineering will clearly be "first in line" to fill these available high-paying positions; keeping "home-grown" talent "close to home."

Student Demand

Presently the MAE department supports a PhD in Mechanical Engineering. A new PhD in Aerospace Engineering will provide graduate students with an option that is more focused on the specialized topics that are central to aerospace engineering. Graduates with a PhD in aerospace engineering will be better prepared and more competitive in the aerospace industry.

Students wanting a PhD degree in aerospace engineering will be able to stay in Utah rather than go out of state. As stated previously, this change will help to keep home-grown talent close to home.

When the PhD in Aerospace Engineering program is approved, there exists a potential for an initial small decrease in the number of students pursuing a PhD in Mechanical Engineering. However, because of the previously-described market demand and the desire of many students to choose a program with a PhD in Aerospace Engineering, overall enrollment in MAE's PhD programs is projected to increase during the next five years.

Statement of Financial Support

Indicate from which of the following the funding for this new degree program will be generated:

Legislative Appropriation	<input type="checkbox"/>
Grants.....	<input checked="" type="checkbox"/>
Reallocated Funds.....	<input checked="" type="checkbox"/>
Tuition dedicated to the program.....	<input type="checkbox"/>
Other	<input checked="" type="checkbox"/>

The MAE's full-time PhD graduate students receive graduate research or graduate teaching assistantships to help finance their education. All of the research assistantships are supported by grants and contracts initiated by the faculty. These grants and contracts also provide research equipment, materials, and supplies used by the students in their courses and research associated with the PhD degree.

Similar Programs Already Offered in the USHE

Currently, there no Aerospace Engineering PhD degree within the Utah System of Higher Education. Thus, offering the Aerospace PhD degree better positions USU to capture regional talent that would otherwise leave the state. A flourishing PhD program in aerospace engineering will likely attract students who would not have previously considered USU.

R 401 Proposal
PhD Degree in Aerospace Engineering
Department of Mechanical and Aerospace Engineering
Utah State University

Section I: The Request

Utah State University (USU) requests approval to offer the Doctor of Philosophy degree in Aerospace Engineering effective Fall Semester 2015. The program has been approved by the institutional Board of Trustees on xx.

Section II: Program Description

Overview

The Department of Mechanical and Aerospace Engineering (MAE) at USU seeks to offer a new PhD (Doctor of Philosophy) degree program in Aerospace Engineering to complement the current MS in Aerospace Engineering and the current MS and PhD programs in Mechanical Engineering. Aerospace Engineering is the primary branch of engineering associated with design, construction, testing, and technology development for all types of flying vehicles including airplanes, rockets, missiles, and spacecraft. Currently, the PhD in Mechanical Engineering degree is being used to accommodate both mechanical and aerospace engineering graduate students who successfully complete the Mechanical Engineering doctoral program. The proposed new degree program will establish a separate degree path for aerospace engineering graduate students and attract new students that specifically desire a PhD graduate degree in Aerospace Engineering. MAE offers sufficient foundation and aerospace courses that provide the breadth and depth needed for a quality aerospace PhD degree program without the need to develop any new courses.

PhD Degree Requirements

The PhD degree requires 72 credit hours beyond the bachelor's degree and 42 credit hours beyond the Master's degree and will comply with all Graduate School requirements for PhD programs of study including a formal dissertation. All students must pass 3 PhD Qualifier Exams, a dissertation proposal defense, and a final dissertation defense. PhD degree requirements also consists of core courses (5000-, 6000-, and 7000-level) in aerospace engineering, advanced mathematics, technical electives, and quality aerospace research. A summary of PhD degree requirements is provided below.

Aerospace Engineering (PhD) Degree Requirements	
Beyond the BS - 72 credits	Beyond the MS - 42 credits
Coursework*: 24 credits (minimum) Aerospace Core <ul style="list-style-type: none"> must include MAE 5500 and 5560 if not previously completed 21 credits (minimum) Aerospace Electives/Other <ul style="list-style-type: none"> No more than 6 credits MAE 7930 Doctoral Publications No more than 6 credits MAE 5930/6930/7930 Independent Study courses. 6 credits advanced math Dissertation Research 21 credits MAE 7970 Dissertation Proposal & Final Defense	Coursework*: 12 credits (minimum) Aerospace Core <ul style="list-style-type: none"> must include MAE 5500 and 5560 if not previously completed 6 credits (minimum) Aerospace Electives/Other <ul style="list-style-type: none"> No more than 6 credits MAE 7930 Doctoral Publications No more than 6 credit MAE 5930/6930/7930 Independent Study courses. 3 credits advanced math Dissertation Research 21 credits MAE 7970 Dissertation Proposal & Final Defense
*No more than 21 credits of 5000- level coursework	*No more than 15 credits of 5000- level coursework

Purpose of the Degree

The new degree program will attract new PhD students to the MAE graduate studies and research program and provide graduate students with the opportunity to receive a degree more directly aligned with the academic and research skills that are critical to the aerospace industry. Students completing this degree program will possess skills sought by research organizations in industry, government, and academia requiring advanced design, research, and technical management in aerospace engineering. The PhD in Aerospace Engineering will support the Utah-based aerospace industry, as well as other prominent regional and national aerospace companies and research laboratories.

Institutional Readiness

The new degree program will be administered by the MAE Department, which has in place the administrative infrastructure necessary to manage the program. There is a graduate committee that oversees the graduate programs and a full-time staff member assigned to the graduate program. Presently, the MAE department supports a PhD program in Mechanical Engineering. The PhD program in Aerospace Engineering will place more emphasis on core aerospace engineering coursework, but will not require additional institutional resources or the development of new courses. In a very real sense, the level of effort and cost to administer this degree program will be the same as that already being accomplished for the Mechanical Engineering PhD degree.

Faculty

Eight faculty members in MAE have appropriate backgrounds and research interests in aerospace engineering to support the program. In the past, these faculty members have supported the MS program in Aerospace Engineering and a degree specialization in aerospace under the MS program in mechanical engineering.

Professors:

Christine Hailey - PhD Mechanical Engineering, University of Oklahoma, 1985 (aerodynamics and flight mechanics)

Associate Professors:

Rees Fullmer – PhD Mechanics Engineering, University of Utah, 1985 (guidance, navigation and control)

Steven Folkman - PhD Mechanical Engineering, Utah State University, 1990 (aerospace structures)

David Geller - PhD Space Physics and Astronomy, Rice University, 1999 (guidance, navigation and control)

Steven Whitmore - PhD Aerospace Engineering, University of California, Los Angeles, 1989 (flight mechanics and propulsion)

Assistant Professors:

Aaron Katz - PhD Aeronautics and Astronautics, Stanford University, 2009 (computational fluid dynamics)

Currently two additional faculty positions are being filled at the assistant professor level to support the needs of the Aerospace Engineering curriculum.

Staff

Additional staff lines will not be required. The current resources within the Department of Mechanical and Aerospace Engineering will be able to accommodate this new program.

Library and Information Resources

Two major library resources needed for the new program are the IEEE Xplore database and a series of journals produced by the American Institute of Aeronautics and Astronautics. The Merrill-Cazier library presently subscribes to these resources. See attached letter from the Merrill-Cazier Library.

Admission Requirements

Applicants with a bachelor's or master's degree in Aerospace Engineering or Mechanical Engineering from an ABET-accredited program can apply. For unrestricted admission to the program, students are required to have a minimum 3.3

GPA and successfully pass the GRE exam. The subject GRE is not required. Additional coursework in aerospace engineering fundamentals may be required in individual cases. All graduate students are expected to have a working knowledge of a computer programming language.

Student Advisement

The mechanics of admission to the programs and fulfilling program requirements are handled by our full-time staff graduate advisor. As students are admitted to the program, they are assigned a temporary faculty advisor who guides them on which courses to take the first semester and how to prepare for the PhD Qualification Exams. During the first semester, students select a graduate committee and a major professor who advise them throughout the rest of their program.

Justification for the Number of Credits

The number of credits required for this program is the same as the currently offered PhD in Mechanical Engineering which is overseen by the Graduate School.

External Review and Accreditation

As with the current PhD program in Mechanical Engineering and practice throughout the United States, no accreditation will be sought.

Projected Enrollment

Table 1. Projected enrollment for the PhD Aerospace Engineering Degree.

Year	Student FTE	Student Headcount	# of Faculty	Mean FTE-to-Faculty Ratio
1	4	4	8	0.50
4	6	6	8	0.75
3	8	8	8	1.00
4	9	9	8	1.13
5	10	10	8	1.25

Section III: Need

Program Need

Within the intermountain region, only Arizona State University, University of Arizona, and the University of Colorado at Boulder offer PhD programs in Aerospace Engineering. There are no Aerospace Engineering PhD degree programs in Wyoming, Nevada or Idaho, or within the Utah System of Higher Education (USHE). Thus, offering the Aerospace PhD degree better positions USU to capture regional talent that would otherwise leave the state. A flourishing PhD program in aerospace engineering will likely attract students who would not have previously considered USU.

Labor Market Demand

Nearly 80,000 engineers are currently employed in aerospace, significantly higher than the number employed in computer hardware, nuclear engineering, biomedical engineering or chemical engineering, among other fields. (IEEE, <http://www.todaysengineer.org/2012/may/career-focus.asp>) According to the U.S. Department of Labor, Bureau of Labor Statistics, aerospace engineers are expected to have a 7% growth in employment during the decade of 2012 to 2022.

Overall, Utah is one of the top ten states in the nation in the concentration of aerospace employment. In 2011, the Economic Development Corporation of Utah listed the leading aerospace organizations in Northern Utah. Largest amongst these organizations is Hill Air Force Base (HAFB) located just south of the city of Ogden, and near the towns of Clearfield, Riverdale, Roy, Sunset, and Layton. HAFB is the host unit for the USAF Material Command's 75th Air Base Wing. This unit provides

support for the Ogden Air Logistics Complex (OALC) and its subordinate organizations. The OALC is the worldwide manager for a wide range of aircraft, engines, missiles, software, avionics, and accessories components. The largest private employer is Alliant Technology Systems (ATK) with the Space Systems Division groups located in Magna and Promontory, and it's Aerospace Structures Division in Clearfield.

These large-scale employers are supported by a significant group of medium-sized employers including Aircraft and Space Defense Groups of Moog Inc., the Parker-Hannifin Corporation, Boeing Utah Company, and the Northrop Grumman Space and Missile Systems Group, all of Layton, Utah.

The Space Dynamics Laboratory, North Logan, Utah is a University Affiliated Research and Development Center (UARC) and a sub-unit of the Utah State University Research Foundation (USURF). It is a medium-sized non-commercial employer of aerospace engineers. SDL expects to continue to hire new PhD aerospace engineers as they have done for the past 50 years, and it would be to SDL's advantage if these PhD engineers were "home-grown" right in their own backyard.

Multiple small private supplier and integration organizations provide to this network of large-to medium scale employers. Examples of these small support vendors include Compositex, Inc., Sandy, Utah, a manufacturer of rocketry cases and nozzles; Groen Brothers Aviation Global, Inc., Salt lake City, Utah, a designer of high-performance rotorcraft for both civil and military applications; Borsight, Inc., Ogden, Utah, an aerospace systems integrator; and Hypercomp, Inc., Brigham City, Utah, a manufacturer of composite pressure vessels.

Despite the changing environment of the aerospace industry, where NASA's operations have scaled back significantly, demand for aerospace engineers by private, commercial, and national defense employers is still strong. Over the decade from 2012 to 2022, the Bureau of Labor Statistics projects a 7% growth in employment for aerospace engineers. This growth is primarily driven by two emerging markets 1) unmanned aerial vehicle (UAV) and their integration into civil airspace, and 2) commercial space ventures both crewed and robotic. These emerging markets will require the creation and development of a wide swath of highly specialized technologies in order to become viable, and will clearly support a large pool of employees with advanced aerospace engineering degrees. Given the large concentration of aerospace industries in Utah, USU graduates with a PhD in aerospace engineering will clearly be "first in line" to fill these high-paying positions; keeping "home-grown" talent "close to home." USU and SDL already host the annual "SmallSAT" international conference on small spacecraft technologies; and the introduction of the PhD degree in Aerospace Engineering will better position Utah State to become the de facto leader of small spacecraft world.

Student Demand

Presently the MAE department supports a PhD in Mechanical Engineering. A new PhD in Aerospace Engineering will provide graduate students with an option that is more focused on the specialized topics that are central to aerospace engineering. Graduates with a PhD in aerospace engineering will be better prepared and more competitive in the aerospace industry. Students wanting a PhD degree in aerospace engineering will be able to stay in Utah rather than go out of state. As stated previously, this change will help to keep home-grown talent close to home.

When the PhD in Aerospace Engineering program is approved, there exists a potential for an initial small decrease in the number of students pursuing a PhD in Mechanical Engineering. However, because of the previously-described market demand and the desire of many students to choose a program with a PhD in Aerospace Engineering, overall enrollment in MAE's PhD programs is projected to increase during the next five years.

Section IV: Impact and Benefits

Collaborations with and Impact on Other USHE Institutions

There will be no impact on other USHE institutions.

Benefits

The PhD in Aerospace Engineering will directly impact the goals of the USHE to prepare a workforce and develop advanced aerospace technologies that will directly impact Utah's economy. This proposed degree will make USU graduates more competitive for aerospace engineering positions within Utah as well as elsewhere in the aerospace industry. By having more engineers educated and trained for their needs, the Utah aerospace companies are, presumably, going to be more competitive in competing for new contracts and developing new aerospace technologies.

Consistency with Institutional Mission

The mission of USU is to be one of the nation's premier student-centered land-grant and space-grant universities by fostering the principle that academics come first, by cultivating diversity of thought and culture, and by serving the public through learning, discovery, and engagement.

The proposed PhD in Aerospace Engineering enhances the University's reputation as a space-grant institution through both its graduates and research productivity. It supports the University Mission Statement in the following ways:

1. The department becomes more student-centered by providing a program to meet the needs of the students.
2. The doctoral program will improve academics in aerospace engineering by fostering research in the forefront of the field, consistent with the USU mission to be one of the nation's premier space-grant universities.

The doctoral program will serve the public by application of the research produced. It will also serve the growing aerospace industry in Utah with a better-prepared work force.

Section V: Program and Student Assessment

Program Assessment

The major goal for the program is to graduate PhD students with expertise in aerospace engineering and who are prepared to meet the needs of research organizations in industry and academia. Attainment of this goal will be measured by the placement rate of graduates within local and national research laboratories in industry, government, and academia.

Expected Standards of Performance

The standard of performance for all students is a grade of C or better in all classes required for the degree and to maintain an overall program GPA of 3.0 or higher in order to graduate with a PhD degree. In addition, all PhD students must satisfactorily pass a set of qualification exams within 3 semesters of being admitted to the aerospace engineering PhD program, and pass a dissertation defense upon completion of their dissertation research. PhD students are also expected to publish in peer-reviewed journals before completing their PhD program of study. These standards are already well established in the Graduate School as well as for the existing Mechanical Engineering PhD degree program.

Section VI: Finances

Funding Sources

The proposed PhD in Aerospace Engineering builds on MAE's MS in Aerospace Engineering Program and the aerospace specialization in place within MAE's undergraduate program. Additional funding is not required.

Reallocation

No budget transfers or reallocations will be requested or needed to offer a quality program as explained in the next section.

Impact on Existing Budget

A new aerospace PhD degree will enhance the MAE graduate program with virtually no impact on existing budgets.

Faculty: This new degree will have no impact on faculty salaries since new faculty positions are not needed to offer the degree. In reality, each professor is constantly managing his/her time to maintain a research program that includes preparing proposals, contract management, student mentoring, teaching courses, publishing research results, and providing University and professional service. Experience has shown that even though the required student contact time increases with the number of graduate advisees, the overall workload may not increase but actually decrease because there is more graduate student support for developing and maintaining the research productivity. The MAE Faculty feels that the benefits of the projected enrollment offset the time costs to manage the program.

Staff: This new degree program will have no impact on staff work load and staff salaries.

Facilities: During the past five years, the MAE department has been planning for and working toward increased graduate enrollment and has sufficient office/study space to accommodate the expected small enrollment increase. Most of the incidental cost associated with graduate students is already covered by the research grants/contracts and F&A return such that the impact on E&G funds is essentially zero.

Operating Costs: Increase in enrollment results in increased copy service charges and other miscellaneous expenses. MAE has already been using electronic communications more and more to curb paper and copy expenses. This will continue such that these costs will be minimal for this degree program. In summary, the additional work load imposed by this degree is minimal and will have no impact on tasks that would normally be done by current faculty and staff.

Budget Explanation: Salaries, wages, and benefits represent the expenses associated with teaching the courses for the new PhD Aerospace program. Since these courses are already being taught, the revenue to pay for these expenses is simply a reallocation within current department funds. Thus, the difference, revenue less expenses, is zero. The teaching expenses are based on eight faculty members with an approximately 50% teaching role assignment, and with a 50/50 split between mechanical engineering courses and aerospace engineering courses. The expenses are thus approximately 25% of our current salaries, wages, and benefits for these faculty members. Note that any additional expenses associated with research will be externally funded.

Comments for Table 2:

- FTE = 10 credits
- Tuition increase is estimated at 8%.
- Salary and Wages increase is estimated at 3%.
- Benefit increase follows the Sponsored Programs rates
- **No new funding is required for this program.**

Table 2. Projected Aerospace PhD Program Revenue and Expenses

		Year 1	Year 2	Year 3	Year 4	Year 5
Students						
	Projected FTE	4	6	8	9	10
	Cost Per FTE	12,173	10,843	9,811	9,455	9,139
	Student/Faculty Ratio	0.50	0.75	1.00	1.13	1.25
Projected Tuition						

	Gross Tuition	21,897	35,473	51,081	62,063	74,476
	Tuition to Program	0	0	0	0	0
5 Year Budget Projection						
		Year 1	Year 2	Year 3	Year 4	Year 5
Expenses						
	Salaries & Wages					
	Benefits	N/A – All costs are currently covered in existing programs. There are no additional faculty or staff FTE, library or other operational funds required				
	Total Personnel					
	Current Expense					
	Travel					
	Capital					
	Library Expense					
Total Expense						
Revenue						
	Legislative Appropriation					
	Grants	N/A – Funded through existing resources				
	Reallocation					
	Tuition to Program					
	Fees					
Total Revenue						
Difference	Revenue-Expense	0	0	0	0	0

Appendix A: Program Curriculum

All Program Courses

PhD Beyond BS	
Course Requirements	Credit Hours (minimum)
Core Courses	24
Math Courses	6
Dissertation Research	21
Technical electives/other credits	21
Total Credits	72

PhD Beyond MS	
Course Requirements	Credit Hours (minimum)
Core Courses	12
Math Course	3
Dissertation Research	21
Technical electives/other credits	6
Total Credits	42

Existing Aerospace Core Courses

Fall Semester

MAE 5500 Aerodynamics
MAE 5560 Dynamics of Space Flight
MAE 6500 Potential Flow
MAE 6510 Aircraft Dynamics and Flight Simulation
MAE 6540 Advanced Astrodynamics
MAE 7540 Advanced Astrodynamics Techniques/Applications

Spring Semester

MAE 6340 Spacecraft Attitude Control
MAE 6560 Spacecraft Navigation
MAE 6930 Advanced Control of Aero Vehicles

Summer Semester

MAE 6530 Advanced Propulsion
MAE 6570 Optimal Space Guidance
MAE 6930 Monte Carlo and Linear Covariance Techniques
MAE 7560 Optimal Estimation/Aerospace

Aerospace Technical Electives

Fall Semester

MAE 5310 Dynamic Systems and Controls
MAE 5420 Compressible Fluid Flow
MAE 6180 Dynamics & Vibrations
MAE 6410 Fluid Dynamics
MAE 7360 Optimal and Robust Control

MAE 6320 Linear Multivariable Control
ECE 5230 Space Systems Engineering
ECE 6240 Space Environment Engineering
ECE 6650 Optics I

Spring Semester

MAE 5440 Computational Fluid Dynamics
MAE 5510 Dynamics of Atmospheric Flight
MAE 5540 Propulsion Systems
MAE 6440 Advanced Computational Fluid Dynamics
MAE 6490 Turbulence*
MAE 6550 Advanced Structural Analysis
MAE 7330 Nonlinear and Adaptive Control
MAE 7350 Intelligent Control Systems

All Semesters (Fall, Spring, and Summer)

MAE 5930, 6930, 7930 Special Topics (must be Aero focused)

Approved Mathematics Courses

- a. MATH 5270: Complex Variables
- b. MATH 5410: Methods of Applied Mathematics
- c. MATH 5420: Partial Differential Equations
- d. MATH 5460: Introduction to Theory and Application of Nonlinear Dynamics Systems
- e. MATH 5760: Stochastic Processes
- f. MATH 6270: Complex Variables
- g. MATH 6410: Ordinary Differential Equations I
- h. MATH 6420: Partial Differential Equations I
- i. MATH 6440: Ordinary Differential Equations II
- j. MATH 6450: Partial Differential Equations II
- k. MATH 6470: Advanced Asymptotic Methods
- l. MATH 6610: Numerical Analysis
- m. MATH 6620: Numerical Analysis
- n. MATH 6640: Optimization
- o. ECE 6010: Stochastic Processes in Electronic Systems
- p. ECE 6030: Mathematical Methods for Signals and Systems
- q. STAT 5200 Design of Experiments
- r. MAE 7560 Optimal Estimation for Aerospace Systems

New Courses to be Added in the Next Five Years

No new courses are currently planned. However, to enhance the program and continually strengthen its relevance, it is expected that new courses will be integrated over time into the program using well established practices.

Appendix B: Program Schedule

The following is a sample program of study for the Aerospace Engineering PhD beyond the BS.

PhD Aerospace Engineering (Year 1)			Yr 1 Credits
Fall 1	Spring 1	Summer 1	
MAE 5500	MAE 6340	MAE 6530	
MAE 5560	MAE 5540 ¹		
MAE 5420 ¹	MAE 5440 ¹		
9 hours	9 hours	3	21

¹ Technical Elective

PhD Aerospace Engineering (Year 2)			Yr 2 Credits
Fall 2	Spring 2	Summer 2	
MAE 6500	MAE 6560	MAE 6570	
MAE 6540	Math 5420		
MAE 5310 ¹	MAE 6440 ¹		
9 hours	9 hours	3 hours	21

¹ Technical Elective

PhD Aerospace Engineering (Year 3)			Yr 3 Credits
Fall 3	Spring 3	Summer 3	
MAE 6410 ¹	MAE 7970	MAE 7560 ^m	
ECE 5230 ¹			
6 hours	9 hours	3 hours	18

¹ Technical Elective ^m Math Course

PhD Aerospace Engineering (Year 4)			Yr 4 Credits
Fall 4	Spring 4	Summer 4	
MAE 7970	MAE 7970		
6 hours	6 hours		12

Total Credits	72
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The following is a sample program of study for the Aerospace Engineering PhD beyond the MS.

PhD Aerospace Engineering (Year 1)			Yr 1 Credits
Fall 1	Spring 1	Summer 1	
MAE 5500	MAE 6340	MAE 6530	
MAE 5560	MAE 5540 ¹		
MAE 5420 ¹	MATH 5420		
9 hours	9 hours	3	21

¹ Technical Elective

PhD Aerospace Engineering (Year 2)			Yr 2 Credits
Fall 2	Spring 2	Summer 2	
MAE 7970	MAE 7970		
6 hours	6 hours		12

¹ Technical Elective

PhD Aerospace Engineering (Year 3)			Yr 3 Credits
Fall 3	Spring 3	Summer 3	
MAE 7970	MAE 7970		
6 hours	3 hours		9

Total Credits	42
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Appendix C: Faculty

Professors:

Christine Hailey - PhD Mechanical Engineering, University of Oklahoma, 1985 (aerodynamics and flight mechanics)

Associate Professors:

Rees Fullmer – PhD Mechanics Engineering, University of Utah, 1985 (guidance, navigation and control)

Steven Folkman - PhD Mechanical Engineering, Utah State University, 1990 (aerospace structures)

David Geller - PhD Space Physics and Astronomy, Rice University, 1999 (guidance, navigation and control)

Steven Whitmore - PhD Aerospace Engineering, University of California, Los Angeles, 1989 (propulsion)

Assistant Professors:

Aaron Katz - PhD Aeronautics and Astronautics, Stanford University, 2009 (computational fluid dynamics)

Currently two additional faculty positions are being filled at the assistant professor level to support the needs of the Aerospace Engineering curriculum.

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: Utah State University

Proposed Title: B.S. in Biology with Human Biology Emphasis (new emphasis)

Currently Approved Title: NA

School or Division or Location: College of Science

Department(s) or Area(s) Location: Department of Biology

Recommended Classification of Instructional Programs (CIP) Code¹ (for new programs): 29.9999

Current Classification of Instructional Programs (CIP) Code (for existing programs): NA

Proposed Beginning Date (for new programs): 08/01/2014

Institutional Board of Trustees' Approval Date:

Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
<i>R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar</i>		
SECTION NO.		ITEM
5.1.1	<input type="checkbox"/>	Minor*
5.1.2	<input checked="" type="checkbox"/>	Emphasis*
5.2.1	<input type="checkbox"/>	(CER P) Certificate of Proficiency*
5.2.3	<input type="checkbox"/>	(GCR) Graduate Certificate*
5.4.1	<input type="checkbox"/>	New Administrative Unit
	<input type="checkbox"/>	Administrative Unit Transfer
	<input type="checkbox"/>	Administrative Unit Restructure
	<input type="checkbox"/>	Administrative Unit Consolidation
5.4.2	<input type="checkbox"/>	Conditional Three-Year Approval for New Centers, Institutes, or Bureaus
5.4.3	<input type="checkbox"/>	New Center
	<input type="checkbox"/>	New Institute
	<input type="checkbox"/>	New Bureau
5.5.1	<input type="checkbox"/>	Out-of-Service Area Delivery of Programs
5.5.2	<input type="checkbox"/>	Program Transfer
	<input type="checkbox"/>	Program Restructure
	<input type="checkbox"/>	Program Consolidation
5.5.3	<input type="checkbox"/>	Name Change of Existing Programs
5.5.4	<input type="checkbox"/>	Program Discontinuation
	<input type="checkbox"/>	Program Suspension
5.5.5	<input type="checkbox"/>	Reinstatement of Previously Suspended Program
	<input type="checkbox"/>	Reinstatement of Previously Suspended Administrative Unit

**Requires "Section V: Program Curriculum" of Abbreviated Template*

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date: MM/DD/YEAR

Printed Name: Name of CAO or Designee

¹ CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

Program Request - Abbreviated Template
Utah State University
Bachelor of Science in Biology with a Human Biology Emphasis
10/22/2014

Section I: Request

This document requests a new Human Biology Emphasis be added to the existing Bachelor of Science degree in Biology.

Section II: Need

There is student demand for a biology curriculum tailored to the interests of students wishing to pursue health-related careers. Many of these students are no longer pursuing biology majors. By creating a curriculum that continues to provide a strong grounding in biological sciences but with special emphasis in human-related areas, the Department of Biology will attract and retain some of the best and brightest undergraduates. An important feature of the Human Biology Emphasis is that because it retains strength in the basic sciences, students who ultimately decide to pursue careers outside the health professions will still be well-prepared for graduate school or employment in basic or biomedical sciences.

The Human Biology emphasis for the Bachelor's degree in Biology is designed to increase elective flexibility while maintaining rigor. The Human Biology emphasis prepares students for professional schools by teaching them to be scientists, but also broadens their understanding of the human condition. Inclusion of social science and humanities requirements more closely aligns the Human Biology emphasis with new professional school admission requirements. For example, starting in 2015, the Medical College Admission Test (MCAT) will give equal weight to testing biological, biochemical, chemical and physical foundations and to testing psychological, social, and biological foundations of behavior.

The Human Biology emphasis parallels the Biology emphasis with the following differences:

Biology emphasis requirements NOT in the Human Biology emphasis:

- Field course requirement

Curriculum features NEW to the Human Biology emphasis:

- Required courses in Biology (not required for the Biology emphasis)
 - Freshman seminar course of either Pre-Health Professions or Biology Professions
- Required courses in Social Sciences and Humanities
 - General Psychology, Introductory Sociology, or Introduction to Social Problems
- Changes in elective choices
 - Allowance of human biology-related courses outside of Biology such as nutrition and osteology

Section III: Institutional Impact

Our department currently teaches many of the courses taken by pre-health students. The Human Biology emphasis will help us retain pre-health students as majors in the department while providing them with what we believe is the most appropriate background for success in professional schools and careers in health. Additionally, the Department of Biology has an excellent working relationship with the pre-health advising staff whose feedback was solicited in the development of the Human Biology emphasis.

The proposed change is not anticipated to significantly affect enrollments in any other instructional programs of affiliated departments or programs, nor will the proposed change affect any existing administrative structures. No changes in faculty or staff will be required, nor will any new physical facilities or modification to existing facilities be required. No equipment will need to be committed to initiate this change.

Section IV: Finances

We do not anticipate any costs or savings from this change. No new funds are required. We do not anticipate any budgetary impact on other programs since we teach most of the courses taken by pre-health students anyway.

Section V: Program Curriculum

All Program Courses (with New Courses in Bold)

This table continues on the following page.

Course Prefix and Number	Title	Credit Hours
Required Courses	<u>Required Biology Courses (27-28 credits):</u>	
	BIOL 1050- Biology Professions	
	OR	
	BIOL 1060- Pre-Health Professions	1
	BIOL 1610- Biology I	4
	BIOL 1620- Biology II (BLS)	4
	BIOL 2220- General Ecology	3
	BIOL 3060- Principles of Genetics (QI)	4
	BIOL 5250- Evolutionary Biology (CI)	3
	BIOL 4600- Advanced Human Physiology	
	-OR-	
	BIOL 5600- Comparative Animal Physiology AND	
	BIOL 5610- Animal Physiology Laboratory	5
	BIOL 3300- General Microbiology	4
	-OR-	OR
	BIOL 5210- Cell Biology	3
	<u>Required Supporting Courses (3 credits)</u>	
	PSY 1010- General Psychology (BSS)	
	-OR-	
	SOC 1010- Introductory Sociology (BSS)	
	-OR-	
	SOC 1020- Introduction to Social Problems (BSS)	3

Course Prefix and Number	Title	Credit Hours
Required Courses (continued)	<u>Required Physical Science Courses (32-39 credits):</u>	
	CHEM 1210- Principles of Chemistry I	4
	CHEM 1215- Chemical Principles Laboratory I	1
	CHEM 1220- Principles of Chemistry II (BSP)	4
	CHEM 1225- Chemical Principles Laboratory II	1
	CHEM 2310- Organic Chemistry I	4
	CHEM 2315- Organic Chemistry Laboratory I	1
	CHEM 2320- Organic Chemistry II	4
	CHEM 2325- Organic Chemistry Laboratory II	1
	CHEM 3700- Introductory Biochemistry AND CHEM 3710- Introductory Biochemistry Laboratory	4
	-OR-	OR
	CHEM 5700- General Biochemistry I AND CHEM 5710- General Biochemistry II AND CHEM 5720- General Biochemistry Laboratory	9
Elective Courses	PHYS 2110- General Physics- Life Sciences I AND PHYS 2120- General Physics- Life Sciences II	8
	-OR-	OR
	PHYS 2210/2215 Gen. Physics- Sci & Eng I (QI) AND PHYS 2220/2225 Gen. Physics- Sci & Eng II (QI)	10
	MATH 1210 Calculus I (QL)	4
	STAT 3000 Statistics for Scientists (QI)	3
	Sub-Total	69-77
	4000 level or above BIOL or PUBH courses BIOL 2320 Human Anatomy BIOL 3100 Bioethics	
	<u>Maximum 4 credits from among the following:</u> BIOL 4250 Internship/Co-Op (1-2 credits) BIOL 4710 Teaching Internship (1 credit) BIOL 5800 Undergraduate Research (1-3 credits) Up to 2 credits of seminar courses	9
	<u>Up to 3 credits from other departments with approval of Director of Undergraduate Studies:</u> Must be appropriate to the Human Biology emphasis, and must be different from the courses used to fulfill University Studies Depth Education requirements.	
	Sub-Total	9
Track/Options (if applicable)	NA	
	Sub-Total	0
	Total Number of Credits	78-86

Program Schedule

FRESHMAN YEAR					
Fall Semester (16 credits)			Spring Semester (15 credits)		
BIOL 1610	Biology I	4	BIOL 1620	Biology II	4
CHEM 1210	Principles of Chemistry I	4	CHEM 1220	Principles of Chemistry II (BPS)	4
CHEM 1215	Chemical Principles Laboratory I	1	CHEM 1225	Chemical Principles Laboratory II	1
BIOL 1050 Or BIOL 1060	Biology Professions Or Pre-Health Professions	1	PSY 1010 Or SOC 1010 Or SOC 1020	General Psychology Or Introductory Sociology Or Introduction to Social Problems	3
	University Studies or Math prerequisite courses (if students need Math courses prerequisite to MATH 1210, credits in addition to those listed here may be required)	6		University Studies or Math prerequisite courses (if students need Math courses prerequisite to MATH 1210, credits in addition to those listed here may be required)	3
SOPHOMORE YEAR					
Fall Semester (15-18 credits)			Spring Semester (15-18 credits)		
BIOL 2220	General Ecology	3	BIOL 3060	Principles of Genetics (QI)	4
CHEM 2300	Principles of Organic Chemistry I	3	CHEM 3700	Introductory Biochemistry	3
CHEM 2315	Organic Chemistry Laboratory I	1	CHEM 3710	Introductory Biochemistry Laboratory	1
MATH 1210	Calculus I (QL)	4	STAT 3000	Statistics for Scientists (QI)	3
	University Studies or Elective courses	5-7		University Studies or Elective courses	5-7
JUNIOR YEAR					
Fall Semester (15-18 credits)			Spring Semester (15-18 credits)		
BIOL 3300 Or BIOL elective	General Microbiology Or Elective	4 Or 3-4	BIOL 3300 or BIOL elective	General Microbiology Or Elective	4 or 3-4
PHYS 2110 Or PHYS 2110 & PHYS 2115	General Physics- Life Sciences I Or Physics for Sci. & Engineers I (QI) Physics for Sci. & Engineers Lab I	4 Or 5	PHYS 2110 Or PHYS 2110 & PHYS 2115	General Physics- Life Sciences II Or Physics for Sci. & Engineers II (QI) Physics for Sci. & Engineers Lab II	4 or 5
	University Studies or Elective courses	6-9		University Studies or Elective courses	6-9
SENIOR YEAR					
Fall Semester (15-18 credits)			Spring Semester (15-18 credits)		
BIOL 5250 Or BIOL elective	Evolutionary Biology (CI) Or BIOL elective	3	BIOL 5250 Or BIOL elective	Evolutionary Biology (CI) Or BIOL elective	3
Upper level Physiology with Laboratory Or BIOL elective	BIOL 5600 Comparative Animal Physiology And BIOL 5610 Animal Physiology Laboratory Or BIOL elective	5	Upper level Physiology with Laboratory Or BIOL elective	BIOL 4600 Advanced Human Physiology Or BIOL elective	5
	University Studies or Elective courses	7-15		University Studies or Elective courses	7-15

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: Utah State University

Proposed Title: Minor in Real Estate

Currently Approved Title:

School or Division or Location: Huntsman College of Business, Logan UT

Department(s) or Area(s) Location: Department of Economics and Finance

Recommended Classification of Instructional Programs (CIP) Code¹ (for new programs): 52.15

Current Classification of Instructional Programs (CIP) Code (for existing programs):

Proposed Beginning Date (for new programs): 08/15/2015

Institutional Board of Trustees' Approval Date:

Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
<i>R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar</i>		
SECTION NO.		ITEM
5.1.1	<input checked="" type="checkbox"/>	Minor*
5.1.2	<input type="checkbox"/>	Emphasis*
5.2.1	<input type="checkbox"/>	(CER P) Certificate of Proficiency*
5.2.3	<input type="checkbox"/>	(GCR) Graduate Certificate*
5.4.1	<input type="checkbox"/>	New Administrative Unit
	<input type="checkbox"/>	Administrative Unit Transfer
	<input type="checkbox"/>	Administrative Unit Restructure
	<input type="checkbox"/>	Administrative Unit Consolidation
5.4.2	<input type="checkbox"/>	Conditional Three-Year Approval for New Centers, Institutes, or Bureaus
5.4.3	<input type="checkbox"/>	New Center
	<input type="checkbox"/>	New Institute
	<input type="checkbox"/>	New Bureau
5.5.1	<input type="checkbox"/>	Out-of-Service Area Delivery of Programs
5.5.2	<input type="checkbox"/>	Program Transfer
	<input type="checkbox"/>	Program Restructure
	<input type="checkbox"/>	Program Consolidation
5.5.3	<input type="checkbox"/>	Name Change of Existing Programs
5.5.4	<input type="checkbox"/>	Program Discontinuation
	<input type="checkbox"/>	Program Suspension
5.5.5	<input type="checkbox"/>	Reinstatement of Previously Suspended Program
	<input type="checkbox"/>	Reinstatement of Previously Suspended Administrative Unit

**Requires "Section V: Program Curriculum" of Abbreviated Template*

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date:

Printed Name:

¹ CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

Program Request - Abbreviated Template
Utah State University
Minor in Real Estate
10/01/2014

Section I: Request

This request is to create a minor in real estate in the Department of Economics and Finance in the Jon M. Huntsman School of Business. The primary impact of this new minor will be the creation of two new courses.

Section II: Need

The creation of the new courses and a minor in real estate will afford students more educational options in an area where many have shown great interest. Each semester students inquire about additional courses that involve the topic of real estate. Currently we only offer one course in real estate. In contrast, the University of Utah offers 10 courses at the undergraduate and graduate level in real estate.

Section III: Institutional Impact

The real estate courses will be additional electives that can be taken by business majors. Although there will be some students who choose a real estate course in lieu of some other elective within the Huntsman School, no adverse impact is anticipated on other departments or programs. Further, no additional administrative resources will be needed. Advisors will need to be informed of the range and scope of the real estate courses and minor. There will be no need for additional faculty or staff. The courses will be taught by the existing faculty and staff who have expertise in this area of study.

Section IV: Finances

Currently, due to limited course offerings relative to the number of majors, upper division finance courses often have over 50 students in a section. Therefore, the department needs to offer additional upper division finance courses. The two new real estate courses will meet this need. These courses will be taught by an adjunct for a total cost of \$13,000 per year. Existing departmental resources will fund this additional cost.

Section V: Program Curriculum

All Program Courses (with New Courses in Bold)

Course Prefix and Number	Title	Credit Hours
Required Courses		
FIN 3200	Financial Management	2
FIN 3400	Corporate Finance	2
FIN 4430	Real Estate Finance	3
FIN 4540 (new course)	Real Estate Valuation	3
FIN 4550 (new course)	Real Estate Development	3
Sub-Total		13

Course Prefix and Number	Title	Credit Hours
Total Number of Credits		13

Program Schedule

Fall Semester

FIN 3200 Financial Management – 2 hours

FIN 3400 Corporate Finance – 2 hours

FIN 4540 Real Estate Valuation – 3 hours

Spring Semester

FIN 4430 Real Estate Finance – 3 hours

FIN 4550 Real Estate Development – 3 hours

Appendix G: Abbreviated Template

Instructions:

- The Abbreviated Template should be used for those items identified as needing the Abbreviated Template in R401-4 and R401-5 and listed as possible items to check on the Cover/Signature Page below.
- **An Abbreviated Template consists of a Cover/Signature Page – Abbreviated Template and Program Request – Abbreviated Template.**
 - **Cover/Signature Page – Abbreviated Template:** Complete the items requested at the top of the page, INCLUDING SELECTING A CIP CODE. Check which type(s) of item(s) apply.
 - **Program Request – Abbreviated Template:** Complete the sections requested, removing the descriptive italics and replacing them with the content of the proposal.
- Prepare the Abbreviated Template per R401-6 instructions as a **Word document** (no PDF formats). Begin each of the two sections (Cover/Signature Page and Program Request) at the top of a new page. When *descriptions of the content required for each section appear in this font color*, the descriptive italics are to be removed and replaced with the institutional content before the institution submits the proposal to the OCHE.
- The CAO or his/her designated representatives should e-mail the completed Abbreviated Template (including electronic signature) to academicaffairs@ushe.edu.
- The institution is responsible for maintaining a record of the submission as the OCHE Academic and Student Affairs office is not responsible for storing electronic copies of submitted proposals.

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: Utah State University

Proposed Title: NA

Currently Approved Title: School Health Emphasis of the BS Health Education and Promotion

School or Division or Location: NA

Department(s) or Area(s) Location: Health, Physical Education & Recreation

Recommended Classification of Instructional Programs (CIP) Code¹ (for new programs): NA

Current Classification of Instructional Programs (CIP) Code (for existing programs): 13.1307

Proposed Beginning Date (for new programs): NA

Institutional Board of Trustees' Approval Date: / /

Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar		
SECTION NO.		ITEM
5.1.1	<input type="checkbox"/>	Minor*
5.1.2	<input checked="" type="checkbox"/>	Emphasis*
5.2.1	<input type="checkbox"/>	(CER P) Certificate of Proficiency*
5.2.3	<input type="checkbox"/>	(GCR) Graduate Certificate*
5.4.1	<input type="checkbox"/>	New Administrative Unit
	<input type="checkbox"/>	Administrative Unit Transfer
	<input type="checkbox"/>	Administrative Unit Restructure
	<input type="checkbox"/>	Administrative Unit Consolidation
5.4.2	<input type="checkbox"/>	Conditional Three-Year Approval for New Centers, Institutes, or Bureaus
5.4.3	<input type="checkbox"/>	New Center
	<input type="checkbox"/>	New Institute
	<input type="checkbox"/>	New Bureau
5.5.1	<input type="checkbox"/>	Out-of-Service Area Delivery of Programs
5.5.2	<input type="checkbox"/>	Program Transfer
	<input type="checkbox"/>	Program Restructure
	<input type="checkbox"/>	Program Consolidation
5.5.3	<input type="checkbox"/>	Name Change of Existing Programs
5.5.4	<input type="checkbox"/>	Program Discontinuation
	<input type="checkbox"/>	Program Suspension
5.5.5	<input type="checkbox"/>	Reinstatement of Previously Suspended Program
	<input type="checkbox"/>	Reinstatement of Previously Suspended Administrative Unit

*Requires "Section V: Program Curriculum" of Abbreviated Template

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date: / /

Printed Name:

¹ CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

Program Request - Abbreviated Template
Utah State University
School Health Emphasis- BS Health Education and Promotion
09/23/2014

Section I: Request

Discontinuation of the School Health Emphasis within the BS Health Education and Promotion degree. This will result in Utah State University no longer offering teacher education preparation for the Health endorsement.

Section II: Need

In the past three years the School Health emphasis at USU has averaged three graduates and this trend has been declining for the past decade. With the growth of the Community Health and Health Sciences emphases (approximate doubling from 70 to 145 students) within the BS Health Education and Promotion degree present resources make it extremely difficult to serve all three emphases. At present Weber State University offers the School Health Teaching Major while BYU, the U of U, and SUU offers the School Health Teaching Minor. These programs have the capacity to provide sufficient graduates to meet future state demand for licensed School Health teachers.

Section III: Institutional Impact

This discontinuation will also impact the School Health Minor as the HPER faculty will remove school health curriculum from academic courses and will no longer be offering supervisory services for teacher education in School Health. The School Health Emphasis at present has 15 students enrolled in the program. It is unclear if any of these students would switch to another emphasis within Health Education and Promotion or to another teaching degree. All remaining students who desire to earn the School Health Emphasis will be alerted to a schedule where the required courses will be offered in order for them to complete the program. No request for new faculty, staff or physical facilities will be submitted. We do not anticipate any negative impact on other undergraduate programs.

Section IV: Finances

No new funds are requested and there are no new budgetary impacts on the department or college.

Section V: Program Curriculum

All Program Courses

The current courses for the School Health Emphasis program will continue to be offered as part of the Community Health and Health Sciences emphases within the BS Health Education and Promotion degree with the following exceptions:

HEP 3300	Clinical Experience I	1 cr
HEP 4300	Clinical Experience II	1 cr
HEP 4400	Creative Methods in Teaching Health Education	3 cr
HEP 5500	Student Teaching Seminar	1 cr

HEP 5630 Student Teaching 10 cr

In order to complete the presently declared majors the following course schedule is recommended:

Program Schedule

Fall 2014

HEP 3300	<i>Clinical Experience I</i>	1 cr
HEP 4300	<i>Clinical Experience II</i>	1 cr
HEP 4400	Creative Methods in Teaching Health Education	3 cr
HEP 5500	<i>Student Teaching Seminar</i>	1 cr
HEP 5630	<i>Student Teaching</i>	10 cr

Spring 2015

HEP 3300	<i>Clinical Experience I</i>	1 cr
HEP 4300	<i>Clinical Experience II</i>	1 cr
HEP 4400	Creative Methods in Teaching Health Education	3 cr
HEP 4500	<i>Sexual Education within the Schools</i>	3 cr
HEP 5500	<i>Student Teaching Seminar</i>	1 cr
HEP 5630	<i>Student Teaching</i>	10 cr

Fall 2015

HEP 3300	<i>Clinical Experience I</i>	1 cr
HEP 4300	<i>Clinical Experience II</i>	1 cr
HEP 4400	Creative Methods in Teaching Health Education	3 cr
HEP 5500	<i>Student Teaching Seminar</i>	1 cr
HEP 5630	<i>Student Teaching</i>	10 cr

Spring 2016

HEP 3300	<i>Clinical Experience I</i>	1 cr
HEP 4300	<i>Clinical Experience II</i>	1 cr
HEP 4400	Creative Methods in Teaching Health Education	3 cr
HEP 4500	<i>Sexual Education within the Schools</i>	3 cr
HEP 5500	<i>Student Teaching Seminar</i>	1 cr
HEP 5630	<i>Student Teaching</i>	10 cr

Fall 2016

HEP 3300	<i>Clinical Experience I</i>	1 cr
HEP 4300	<i>Clinical Experience II</i>	1 cr
HEP 4400	Creative Methods in Teaching Health Education	3 cr
HEP 5500	<i>Student Teaching Seminar</i>	1 cr
HEP 5630	<i>Student Teaching</i>	10 cr

Spring 2017

HEP 3300	<i>Clinical Experience I</i>	1 cr
HEP 4300	<i>Clinical Experience II</i>	1 cr
HEP 4400	Creative Methods in Teaching Health Education	3 cr

<i>HEP 4500</i>	<i>Sexual Education within the Schools</i>	<i>3 cr</i>
<i>HEP 5500</i>	<i>Student Teaching Seminar</i>	<i>1 cr</i>
<i>HEP 5630</i>	<i>Student Teaching</i>	<i>10 cr</i>

If all declared students complete their student teaching prior to Spring 2017 course offerings may end sooner.

Appendix G: Abbreviated Template

Instructions:

- The Abbreviated Template should be used for those items identified as needing the Abbreviated Template in R401-4 and R401-5 and listed as possible items to check on the Cover/Signature Page below.
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- The CAO or his/her designated representatives should e-mail the completed Abbreviated Template (including electronic signature) to academicaffairs@ushe.edu.
- The institution is responsible for maintaining a record of the submission as the OCHE Academic and Student Affairs office is not responsible for storing electronic copies of submitted proposals.

Cover/Signature Page - Abbreviated Template/Abbreviated Template with Curriculum

Institution Submitting Request: Utah State University

Proposed Title: NA

Currently Approved Title: School Health Minor

School or Division or Location: NA

Department(s) or Area(s) Location: Health, Physical Education & Recreation

Recommended Classification of Instructional Programs (CIP) Code¹ (for new programs): *NA*

Current Classification of Instructional Programs (CIP) Code (for existing programs): *13.1307*

Proposed Beginning Date (for new programs): *NA*

Institutional Board of Trustees' Approval Date: / /

Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
<i>R401-5 OCHE Review and Recommendation; Approval on General Consent Calendar</i>		
SECTION NO.		ITEM
5.1.1	<input checked="" type="checkbox"/>	Minor*
5.1.2	<input type="checkbox"/>	Emphasis*
5.2.1	<input type="checkbox"/>	(CER P) Certificate of Proficiency*
5.2.3	<input type="checkbox"/>	(GCR) Graduate Certificate*
5.4.1	<input type="checkbox"/>	New Administrative Unit
	<input type="checkbox"/>	Administrative Unit Transfer
	<input type="checkbox"/>	Administrative Unit Restructure
	<input type="checkbox"/>	Administrative Unit Consolidation
5.4.2	<input type="checkbox"/>	Conditional Three-Year Approval for New Centers, Institutes, or Bureaus
5.4.3	<input type="checkbox"/>	New Center
	<input type="checkbox"/>	New Institute
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5.5.1	<input type="checkbox"/>	Out-of-Service Area Delivery of Programs
5.5.2	<input type="checkbox"/>	Program Transfer
	<input type="checkbox"/>	Program Restructure
	<input type="checkbox"/>	Program Consolidation
5.5.3	<input type="checkbox"/>	Name Change of Existing Programs
5.5.4	<input type="checkbox"/>	Program Discontinuation
	<input type="checkbox"/>	Program Suspension
5.5.5	<input type="checkbox"/>	Reinstatement of Previously Suspended Program
	<input type="checkbox"/>	Reinstatement of Previously Suspended Administrative Unit

**Requires "Section V: Program Curriculum" of Abbreviated Template*

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date: / /

Printed Name:

¹ CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

Program Request - Abbreviated Template
Utah State University
School Health Minor
09/23/2014

Section I: Request

Discontinuation of the School Health Teaching Minor. This will result in Utah State University no longer offering teacher education preparation for the Health endorsement.

Section II: Need

In the past three years the School Health Teaching Minor at USU has suspended acceptance due to inadequate clinical placement opportunities within Cache Valley and northern Utah. With the growth of the Community Health and Health Sciences emphases (approximate doubling from 70 to 145 students) within the BS Health Education and Promotion degree present resources make it extremely difficult to serve all emphases plus the Teaching Minor. At present Weber State University offers the School Health Teaching Major while BYU, the U of U, and SUU offers the School Health Teaching Minor. These programs have the capacity to provide sufficient graduates to meet future state demand for licensed School Health teachers.

Section III: Institutional Impact

The School Health Minor at present has no students enrolled in the program.

Section IV: Finances

No new funds are requested and there are no new budgetary impacts on the department or college.

Section V: Program Curriculum

All Program Courses

The School Health Minor at present has no students enrolled in the program. Therefore, a discontinuation schedule is not presented.

Cover/Signature Page - Abbreviated Template

Institution Submitting Request: *Utah State University*
Proposed Title: *PhD in Instructional Technology & Learning Sciences*
Currently Approved Title: *PhD in Instructional Technology & Learning Sciences*
School or Division or Location: *College of Education*
Department(s) or Area(s) Location: *Instructional Technology & Learning Sciences*
Recommended Classification of Instructional Programs (CIP) Code¹ (for new programs):
Current Classification of Instructional Programs (CIP) Code (for existing programs): 13.0501
Proposed Beginning Date (for new programs): Fall 2015
Institutional Board of Trustees' Approval Date:

Proposal Type (check all that apply):

R401-5		R401-6	
<i>Items submitted will be reviewed by OCHE. If there are any issues, the proposal will be returned for clarification/correction. If no issues, the proposal will be returned with a note of approval and the request will be placed on the General Consent Calendar of the next Regents' agenda.</i>		<i>Items submitted will be reviewed by OCHE. If there are any issues, the proposal will be returned for clarification/correction. If no issues, the proposal will be returned with a note of approval and the request will be placed on the General Consent Calendar of the next Regents' agenda.</i>	
Section #	Item	Section #	Item
4.1.5.2	<input type="checkbox"/> Minor*	6.1.1	<input type="checkbox"/> Reinstatement of Previously Suspended Program
5.1.1.1	<input type="checkbox"/> New Emphasis on an Existing Degree*	6.1.5	<input type="checkbox"/> Reinstatement of Previously Suspended Unit
5.1.2	<input type="checkbox"/> Certificate of Proficiency Not Eligible for Financial Aid		
5.1.3	<input type="checkbox"/> Out-of-Service Area Delivery of Programs		
5.1.4	<input type="checkbox"/> Name Change of Existing Programs		
	<input type="checkbox"/> Program Transfer		
5.1.5	<input checked="" type="checkbox"/> Program Restructure		
	<input type="checkbox"/> Program Consolidation		
5.1.6	<input type="checkbox"/> Program Discontinuation		
	<input type="checkbox"/> Program Suspension		
	<input type="checkbox"/> Administrative Unit Creation		
5.1.7	<input type="checkbox"/> Administrative Unit Transfer		
	<input type="checkbox"/> Administrative Unit Consolidation		
	<input type="checkbox"/> New Center		
5.1.8	<input type="checkbox"/> New Institute		
	<input type="checkbox"/> New Bureau		
5.1.9	<input type="checkbox"/> Graduate Certificate		

*Requires "Section VI: Program Curriculum" of Abbreviated Template

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date:

Printed Name:

¹ CIP codes must be recommended by the submitting institution. For CIP code classifications, please see <http://nces.ed.gov/ipeds/cipcode/Default.aspx?y=55>.

R401-5.5
Program Request - Abbreviated Template

Utah State University
PhD In Instructional Technology & Learning Sciences
8/20/2014

Section I: Request

The Department of Instructional Technology & Learning Sciences requests to restructure its PhD program. For this degree program the current credit hour requirements are 90 for BS to PhD and 60 for MS to PhD for incoming students. ITLS proposes that the minimum credit hours be reduced to **70** credit hours for the BS to PhD and to **43** for MS to PhD. This is a reduction of 20 credit hours from the BS to PhD and 17 credit hours from the MS to PhD.

Section II: Need

The awarding of a PhD is not based solely on the number of credits a student has taken; rather it is the mastery of knowledge and skills determined by written and oral comprehensive examinations and the completion of a body of original research (dissertation). Decreasing the number of credits will not affect the quality or rigor of the program but will allow students to complete in a more timely manner. The reduced credit requirements will also necessitate a closer connection between the student and his/her committee in order to establish a viable research plan from the beginning of the program.

Analysis of our peer institutions that offer a PhD in Instructional Technology, Table 1, indicates that all of the institutions require between 60 to 90 credits for a PhD, with the exception on the University of Memphis that requires 54 credits. With this proposed reduction we will become more competitive and will be able to recruit higher qualified applicants.

Table 1. Credits Required by peer Universities for a PhD in Instructional Technology or Learning Sciences, MS to PhD

Institution	Degree	Credits Required
Brigham Young University	PhD in Instructional Psychology & Technology	87
University of Washington	PhD in Learning Sciences	60
Indiana University	PhD in Instructional Systems Technology	60
University of Georgia	PhD in Learning, Design, & Technology	64
Florida State University	PhD in Instructional Systems	90
University of Memphis	PhD in Instructional Design & Technology	54

Section III: Institutional Impact

ITLS anticipates the reduction of required credit hours to obtain a PhD in Instructional Technology & Learning Sciences will increase our ability to recruit and retain the best students from around the country. This change will also help ITLS meet the goals of the recently submitted 5-year Graduate Program Plan. The change will not affect existing administrative structure. ITLS does not expect any changes in faculty or staff to implement the proposed changes.

Section IV: Finances

No additional costs are anticipated as a result of the proposed change. ITLS receives more qualified applications for the PhD than can be accepted in any given time frame. By reducing the credits from 90 to 70 for the BS to PhD program and from 60 to 43 for the MS to PhD program, ITLS may be able to increase the number of funded graduate students as students should be able to finish their degree quicker and require a reduced amount of tuition award dollars.

Institution Submitting Proposal: *Utah State University*

College, School or Division in Which Program/Administrative Unit Will Be Located: *Education*

Department(s) or Area(s) in Which Program/Administrative Unit Will Be Located: *Instructional Technology & Learning Sciences*

Program/Administrative Unit Title: *Instructional Technology & Learning Sciences (ITLS)*

Recommended Classification of Instructional Programs (CIP) Code: 13.0501

Certificate, and/or Degree(s) to Be Awarded: *PhD in Instructional Technology & Learning Sciences*

Proposed Beginning Date: *August 1, 2015*

Institutional Signatures (*as appropriate*):



*Mimi Recker, Department Head
Instructional Technology & Learning Sciences*

*Beth Foley, Dean
College of Agriculture*

*Mark R. McLellan, V.P. of Research
Graduate School Dean*

Date:

Institution Submitting Request: **Utah State University**
 Proposed Title: **Land-Plant-Climate Systems**
 Currently Approved Title: **Environmental Soil / Water Sciences**
 School or Division or Location: **College of Agriculture and Applied Sciences**
 Department(s) or Area(s) Location: **Department of Plants, Soils and Climate**
 Recommended Classification of Instructional Programs (CIP) Code⁵ (for new programs):
 Current Classification of Instructional Programs (CIP) Code (for existing programs): **01.1299**
 Proposed Beginning Date (for new programs): **08/31/2015**
 Institutional Board of Trustees' Approval Date: **MM/DD/YEAR**

Proposal Type (check all that apply):

Regents' General Consent Calendar Items		
<i>R401-5 UCHE Review and Recommendation; Approval on General Consent</i>		
SECTION NO.		ITEM
5.1.1	<input type="checkbox"/>	Minor*
5.1.2	<input type="checkbox"/>	Emphasis*
5.2.1	<input type="checkbox"/>	Certificate of Proficiency*
5.2.3	<input type="checkbox"/>	Graduate Certificate*
5.4.1	<input type="checkbox"/>	New Administrative Unit
	<input type="checkbox"/>	Administrative Unit Transfer
	<input type="checkbox"/>	Administrative Unit Restructure
	<input type="checkbox"/>	Administrative Unit Consolidation
5.4.2	<input type="checkbox"/>	New Center
	<input type="checkbox"/>	New Institute
	<input type="checkbox"/>	New Bureau
5.5.1	<input type="checkbox"/>	Out-of-Service Area Delivery of Programs
5.5.2	<input type="checkbox"/>	Program Transfer
	<input checked="" type="checkbox"/>	Program Restructure
	<input type="checkbox"/>	Program Consolidation
5.5.3	<input checked="" type="checkbox"/>	Name Change of Existing Programs
5.5.4	<input type="checkbox"/>	Program Discontinuation
	<input type="checkbox"/>	Program Suspension
5.5.5	<input type="checkbox"/>	Reinstatement of Previously Suspended Program
	<input type="checkbox"/>	Reinstatement of Previously Suspended Administrative Unit

*Requires "Section V: Program Curriculum" of Abbreviated Template

Chief Academic Officer (or Designee) Signature:

I certify that all required institutional approvals have been obtained prior to submitting this request to the Office of the Commissioner.

Signature

Date: **MM/DD/YEAR**

Printed Name: *Name of CAO or Designee*

Proposal for a Restructuring and Name Change of Environmental Soil / Water Sciences to the Land-Plant-Climate Systems Major

SECTION I: Request

This proposal seeks approval for a restructuring and a name change of the major in Environmental Soil / Water Science (ESWS) to **Land-Plant-Climate Systems** in the Department of Plants, Soils and Climate (PSC). This is a renaming and realignment of curriculum from the current major. The proposed restructured program description and required courses are fully described in Appendix 1.

SECTION II: Need

The world is confronted by complex and connected problems including food insecurity and hunger, accelerating climate change, degradation of arable lands and challenges to the sustainability of ecosystem services. Climate change is projected to have profound effects on ecosystems and human activities including agriculture. The availability of water for communities and agriculture is threatened by water source degradation and over-exploitation. These problems are very complex, but do share the theme of interactions between the physical environment and the biosphere. We have a responsibility to provide objective knowledge to our students about agricultural sustainability, climate change, and the interactions in the earth's critical zone. The emerging issues of food security, climate and environmental change require that we harness our academic programs to ensure that PSC students become familiar with the science and objective knowledge underlying these issues. While many elements of the above problems are addressed in the present ESWS curriculum, the current academic structure does not provide readily for the integration of knowledge needed to address these issues for the 21st Century. Furthermore the name of the major does not emphasize the link to climate science and land systems studies that are true advantages of the Plants, Soils and Climate Department. The proposed major of Land-Plant-Climate Systems (LPCS) will explore the interactions between physical and biological sciences in the framework of promoting sustainable systems. There are currently no similar majors offered in the Utah Higher Education System (UHES). In the US Land Grant University system there are several examples that have similarities. The University of California at Davis in the Department of Land Air and Water Resources has a focus on the integrating themes of climate change, environmental quality, agricultural sustainability, and landscape interfaces and processes (http://lawr.ucdavis.edu/strategic_planning.htm). The University of Minnesota, Department of Soil, Water and Climate offers an undergraduate degree in Environmental Sciences, Policy and Management (<http://www.swac.umn.edu/Education/Undergrad/index.htm>). The proposed integrated LPCS major in PSC would be a unique offering while maintaining the specialized disciplinary knowledge offerings of the previous ESWS major through emphases and minors.

A Major for Undergraduates Integrating Climate, Soils and Plants

The Plants, Soils and Climate Department currently offers undergraduate majors in Environmental Soil / Water Sciences, Plant Science and Residential Landscape Design and Construction. No formal major integrates Plants, Soils and Climate and no undergraduate major is available for students with a focus in climate or biometeorology. We currently offer six minors including: Climate Change and Energy, Crop Biotechnology, Agronomy, Soil Science, Ornamental Horticulture and Horticulture. However, there are several faculty members who are climate scientists with active research and teaching programs and there are students in PSC majors with interest in the area of applied climatology and environmental biophysics. The proposed major would add an emphasis for PSC undergraduate students to receive training in these

areas of science. Students interested in Sustainable Food Production will find an emphasis that considers both plant and animal aspects of agriculture. The number of students advised into a College of Agriculture and Applied Sciences (CAAS) Interdisciplinary Studies major has grown steadily from fewer than five to 24 in the past six years. The CAAS academic advisor who mentors these students estimates that about half are primarily interested in Sustainable Food Production. In addition, the current PSC majors do not adequately address the integration of land, plants and climate nor is there a program that promotes a systems approach to agricultural or environmental sciences. We will promote a problem solving approach in our teaching through new interdisciplinary courses and training students to become adaptive and flexible in their expertise.

Connections to General Student Population

Courses to be developed will include at least one breadth course in Physical Sciences and will support the current minor offerings. Required courses at the undergraduate level that serve students from natural resources and engineering will be improved through considerations to broaden the student experience.

SECTION III: Institutional Impact

The proposed major in **Land-Plant-Climate Systems** will not require additional faculty to initiate. Faculty to teach the courses have been identified and are generally already engaged in area of integrated scholarship. However, future full development of the program will require additional faculty in integrated environmental sciences with expertise in climate and water. Needs for interdisciplinary faculty are dependent upon student numbers. The PSC department already has professional advising for its undergraduates. The departmental faculty and department head have been consulted and are supportive of the restructuring of the major as indicated by the attached documentation.

SECTION IV: Finances

Teaching needs in the area of climate and water sciences will increase as student demand grows. University studies classes with large enrollments will request undergraduate teaching fellows as needed from Office of the Provost. Additional resources will be requested as justified based on enrollment and demand for new courses through the standard departmental, college and university channels.

References

American College & University Presidents Climate Commitment [ACUPCC]
from <http://www.presidentsclimatecommitment.org/> Accessed 4/21/14

Institution Submitting Proposal: Utah State University

College, School or Division affected: College of Agriculture and Applied Sciences and Utah Climate Center

Department(s) or Areas(s) affected: Plants, Soils and Climate

Change Description: Rename and restructure the Environmental Soil and Water Science major to Land-Plant-Climate Systems major

Proposed Beginning Date: Fall 2015

Institutional Signatures (as appropriate):

_____, Department Chair

_____, Dean or Division Chair

_____, Chief Academic Officer

_____, President

_____, Date

Appendix 1. Program Description

(This is included as an appendix but can be formatted as Section V if necessary)

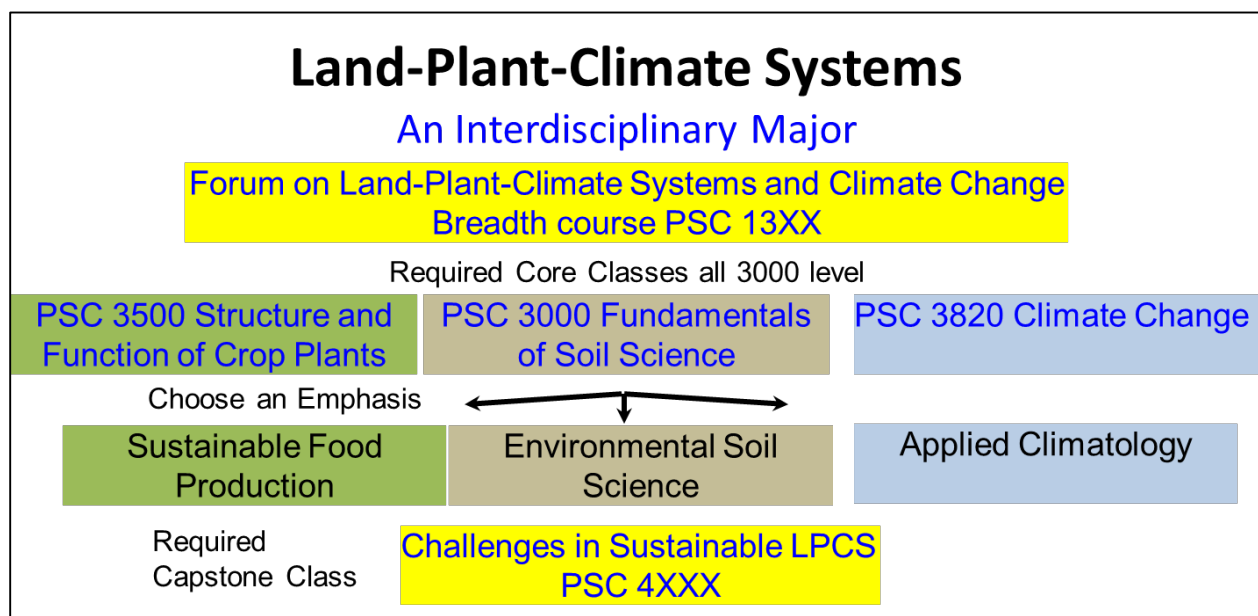


Fig. 1. Overview of LPCS Major

University General Education Requirements

Communications Literacy (6 credits) and Quantitative Literacy (3-4 credits), Math 1050 College algebra (QL) or a MATH course requiring MATH 1050 as a prerequisite is the minimum required for this major (most emphases require additional mathematics). Breadth Requirements include 18 credits at least one course from each of 6 categories. University Studies Depth Education Requirements (two CI, and one QI) and 2 credits in each: Depth Humanities and Creative Arts (DHA) and Depth Social Sciences (DSS).

Major Core Required Courses (15 credits)

The five 5 core classes required of all students to complete the major are described below. The PSC 13XX class will meet one breadth general education physical science requirement for students.

1. **PSC 13XX** Forum on Land-Plant-Climate Systems **BPS** (3)
2. **PSC 3500** Structure and Function of Crop Plants (3)
3. **PSC 3000** Fundamentals of Soil Science (4)
4. **PSC 3820** Climate Change **DSC/QI** (3)
5. **PSC 4XXX** Challenges in Sustainable Land-Plant-Climate Systems (Capstone) **CI** (2)

New Courses Proposed, Required for the Major**PSC 13XX Forum on the Land-Plant-Climate Systems (BPS)**

Introductory breadth physical science class designed to explore global challenges facing the world and local communities in food security, water availability, land degradation, climate change and agricultural and environmental sustainability. Communication and quantitative skills for assessing these complex issues will be strengthened and form the basis for further work on interactions of water with plants in the terrestrial environment. Water, soils, plants and the atmosphere form a physically integrated, dynamic system in which the various flow processes of energy and matter occur. This is proposed as a new course but may eventually replace the current PSC 2010 Soils, Waters and the Environment (BPS).

3 credits PSC faculty

PSC 4XXX Challenges in Sustainable Land-Plant-Climate Systems (CI)

Capstone experience for students completing the major. Students integrate socio-economic and sustainability concepts in the analysis of agricultural and environmental problem(s) and present findings in oral and written reports. Students will engage in collaborative research using their knowledge of Land-Plant-Climate systems. This is proposed as a new course but will eventually replace both the current PSC 4820 Challenges in Climate Change and Energy (CI) and PSC 5740 Environmental Quality: Soil and Water.

Prerequisites: PSC 3820 Climate Change; PSC 3000 Fundamentals of Soil Science, PSC 3500 Structure and Function of Plants
2 credits, PSC faculty

Subtotal = 5 credit hours

Emphasis Required Courses

Select One Emphasis and complete emphasis requirements

Sustainable Food Production

Environmental Soil Science

Applied Climatology

Total = 120-124 credit hours

Courses and Requirements listed in each emphasis include the courses required for the LPCS major for completeness.

Sustainable Food Production

Addressing the challenges in the search for sustainable food production requires a diverse understanding of agriculture and the environment. The goal of sustainable agriculture is to support integrated systems of plant and animal production practices that will, over the long term: satisfy human food and fiber needs; enhance environmental quality and the natural resource base, make the most efficient use of nonrenewable resources and on-farm resources, sustain economic viability of agriculture; and enhance the quality of life for farmers, farm workers and society as a whole. The number of students advised into a College of Agriculture and Applied Sciences (CAAS) Interdisciplinary Studies major has grown steadily from fewer than five to 24 in the past six years. The CAAS academic advisor who mentors these students estimates that about half are primarily interested in Sustainable Food Production. Students in the Sustainable Food Production emphasis will gain a strong foundation in science and develop an individualized curriculum inclusive of animal and crop production as well as the economic and sociological implications of agricultural production. Specific courses will be selected across disciplines within CAAS and tailored to meet each student's interests and goals. The Sustainable Food Production emphasis will include a farm practicum as well as the Land-Plant-Climate Systems capstone course to provide both farming experience and real-world, interdependent problem-solving experience. This emphasis will provide students with an understanding of the interdisciplinary nature of farming systems by emphasizing the ecological theory underpinning the design of farming systems for maximal sustainability. Students will gain a firm foundation for a variety of career options such as owning their own farming enterprise or working as a farm manager for a larger conventional or organic operation. Students will have a sufficiently strong foundation in science to undertake graduate work in agroecology, and they will also be prepared for further study in agricultural business, outreach or policy.

Emphasis in Sustainable Food Production

General Education Requirements (37 credits)

ENGL 1010 (CL) Introduction to Writing (or test)	3
ENGL 2010 (CL) Intermediate Writing	3
ASTE 2900 (BSS) Humanity in the Food Web	3
WILD 2200 (BLS) Ecology of Our Changing World	3
APEC 3010 (DSS) Intro.to Agricultural Economics and Agribusiness	3
HIST 3950 (DHA; CI) Environmental History	3
MATH 1050 (QL) College Algebra	4
PHIL 1120 (BHU) Social Ethics	3
PSC 13XX (BPS) Forum on the Land-Plant-Climate Systems	3
USU 1300 (BAI) US Institutions	3
USU 1330 (BCA) Civilization: Creative Arts	3
ASTE 5260 (CI) Environ. Impacts of Agric. Systems	3
(QI) * see below	

Required Preparatory and Professional Core Courses (50-53 credits)

BIOL 1610 (BLS) Biology I	4
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BIOL 1620 (BLS) Biology II	4
CHEM 1110 (BPS) General Chemistry I	4
CHEM 1115 (BPS) General Chemistry I Lab	1
GEO 3150 (DSC/QI) Energy in the 21 st Century	3
PSC 2800 Fundamentals of Organic Agriculture	3
PSC 3000 Fundamentals of Soil Science	4
PSC 3500 Structure and Function of Plants	3
PSC 3600 Introduction to Plant Breeding and Heredity	2
PSC 3820 Climate Change (DSC/QI)	3
BIOL 4430 Introduction to Plant Pathology	4
BIOL 4500 Applied Entomology	3
PSC 5550 Weed Biology and Control	3
PSC 4900 Organic Farm Practicum and/or	
PSC 4250 Internship in Plants, Soils and/or Climate	1-4
PSC 5530 (QI) Soils and Plant Nutrient Bioavailability	3
PSC 5XXX Advanced Agroecology	3
PSC 4XXX (CI) Challenges in Sustainable LPCS	2

Agricultural Coursework

Select at least 18 credits from the following:

ADVS 1100 Small-Scale Animal Production	3
ADVS 5030 Sustainable Agricultural Production Systems w/ Animals	3
ASTE 1130 Planting and Tillage Equipment	3
ASTE 3080 Compact Power Units for Agric. and Turfgrass Apps.	3
PSC 3420 (QI) Landscape Irrigation Design	2
PSC 4000 Soil and Water Conservation	4
PSC 4050 Greenhouse Management and Crop Production	4
PSC 4280 Field Crops	3
PSC 4320 Forage Production and Pasture Ecology	3
PSC 4400 Modern Vegetable Production	3
PSC 4200 Temperate Zone Fruit Production	3
PSC 4700 Irrigated Soils	3
WILD 4000 Rangeland Management	3
WILD 4500 Conservation Biology	3

Human Systems Coursework

Select at least 12 credits from the following:

ENVS 2340 (BSS) Natural Resources and Society	3
ENVS 3330 Environment and Society	3
ENVS 4700 Communicating Sustainability	3
ENVS 5550 Sustainability: Concepts and Measurement	3
LAEP 2039 Foundations of Sustainability	3
MGT 2350 Small Business Management	3
MGT 3500 Fundamentals of Marketing	3
MIS 5700 (DSS) Internet Mngt. & Electronic Commerce	3
NDFS 1260 Food Literacy	3

PHIL 3510 Environmental Ethics	3
SOC 3610 (DSS) Rural Sociology	3
SOC 4620 (DSS) Sociology of the Environment and Natural Res.	3
SOC/ENVS 5640/6640(CI) Conflict Management in Natural Res.	3
WATS 1200 (BLS) Biodiversity and Sustainability	3

Total Required 117-120 (minimum 120 required for BS degree)

Environmental Soil Sciences

This emphasis prepares students for careers or advanced study in the environmental and soil sciences and the management of land and water resources. Students gain fundamental understanding of the basic sciences and mathematics, as well as a strong background in soil science. Courses emphasize the interactive soil/water processes in terrestrial ecosystems—from the microscopic to the landscape perspective. From this base, each student can design his or her own program of specialization. Graduates are prepared for a variety of career opportunities in the public and private sectors, or to advance their educations in competitive graduate programs.

Emphasis in Environmental Soil Science

General Education Requirements (32 credits)

(CL1) ENGL 1010 Introduction to Writing (or test)	3
(CL2) ENGL 2010 Intermediate Writing	3
(QL) (see Mathematics requirement)	
(BAI)	3
(BCA)	3
(BHU)	3
(BLS) WILD 2200 Ecology of Our Changing World*	3
(BPS) PSC 13XX Forum on the LPCS*	3
(BSS) suggest ASTE 2900 Humanity in the Food Web	3
(DHA) suggest HIST 3950 Environmental History (CI)	3
(DSS) suggest APEC 3010 Intro. to Ag Econ. or APEC 3012	3
(QI) see preparatory classes	
(CI) PSC 48XX Challenges in LPCS* and 1 other	2

* These specific courses are required for the LPCS major or the ESS emphasis as well

Required Preparatory Courses (46-50 credits)

BIOL 1610 Biology I	4
GEO 1110 Physical Geology (BPS)	3
GEO 1115 Physical Geology Lab	1
PSC 3000 Fundamentals of Soil	4
PSC 3500 Structure and Function of Plants	3
PSC 3820 Climate Change (DSC/QI)	3

Complete *one* of the two following blocks of Chemistry courses (9 or 10):

Block 1 (9 credits)

CHEM 1110 General Chemistry I (BPS)	4
CHEM 1120 General Chemistry II (BPS)	4
CHEM 1125 General Chemistry II Laboratory	1

or

Block 2 (10 credits)

CHEM 1210 Principles of Chemistry I	4
CHEM 1215 Chemical Principles Laboratory I	1
CHEM 1220 Principles of Chemistry II (BPS)	4
CHEM 1225 Chemical Principles Laboratory II	1

Complete *one* of the two following blocks of Mathematics courses and *one* Statistics Course, also covers Quantitative Literacy (QL) (11-14 credits):

Block 1 (10 credits)	
MATH 1050 College Algebra (QL)	4
MATH 1060 Trigonometry	2
MATH 1210 Calculus I (QL)	4
<i>or</i>	
Block 2 (8 credits)	
MATH 1210 Calculus I (QL)	4
MATH 1220 Calculus II (QL)	4
 STAT 2000 Statistical Methods (QI)	
4	
<i>or</i>	
STAT 3000 Statistics for Scientists (QI)	3

Complete *one* of the two following blocks of Physics courses (8 credits):

Block 1 (8 credits)	
PHYS 2110 General Physics - Life Sciences I	4
PHYS 2120 General Physics - Life Sciences II (BPS)	4
<i>or</i>	
Block 2 (8 credits)	
PHYS 2210 Physics for Scientists and Engineers I (QI)	4
PHYS 2220 Physics for Scientists and Engineers II (BPS/QI)	4

Required Professional Core (17 credits)

PSC 5050 Principles of Environmental Soil Chemistry	3
PSC 5130 Soil Genesis, Morphology, and Classification	4
PSC 5670 Environmental Soil Physics	4
PSC 5560 Analytical Techniques for the Soil Environment	3
PSC 5310 Soil Microbiology	3
<i>or</i>	
PSC 5530 Soils and Plant Nutrient Bioavailability (QI)	3

Further Discipline Related Courses (15 credits)

Select 15 credits from this list of PSC, ASTE, GEO, WATS, WILD courses with advisor

PSC 2800 Fundamentals of Organic Agriculture	3
PSC 3400 Arboriculture	3
PSC 3600 Introduction to Plant Breeding and Heredity	2
PSC 3810 Turfgrass Management	3
PSC 4000 Soil and Water Conservation	4

PSC 4200	Temperate Zone Fruit Production	3
PSC 4280	Field Crops	3
PSC 4320	Forage Production and Pasture Ecology	3
PSC 4400	Modern Vegetable Production	3
PSC 4500	Soil Reclamation	3
PSC 4700	Irrigated Soils	3
PSC 5100	Prof. Turf and Urban Landscape Water Management	3
PSC 5200	Site Specific Agric. and Landscape/Hort. Management	3
PSC 5270	Environmental Plant Physiology	2
PSC/BIOL 5310	Soil Microbiology	3
PSC/WILD 5350	Wildland Soils	3
PSC 5400	General Meteorology	3
PSC 5430	Plant Nutrition	2
PSC 5500	Environmental Physics of Land Ecosystems and Climate	3
PSC 5530	Soils and Plant Nutrient Bioavailability (QI)	3
PSC 5550	Weed Biology and Control	4
PSC/CEE/WATS 5003	Remote Sensing of Land Surfaces	3
ASTE 5260	Environmental Impacts of Agricultural Systems (CI)	3
BIOL 4430	Introduction to Plant Pathology	4
BIOL 4500	Applied Entomology	3
CEE 3430	Engineering Hydrology	3
CEE 5000	Irrigation and Drainage of Agricultural Lands	3
CEE 5190	Geographic Information Systems for Civil Engineers	3
CHEM 3000	Quantitative Analysis (QI)	3
GEO 3500	Minerals and Rocks	4
GEO 3150	Energy in the 21 st Century (DSC/QI)	3
GEO 3550	Sedimentation and Stratigraphy (CI)	4
GEO/WATS 3600	Geomorphology	4
GEO 5510	Groundwater Geology (QI)	3
GEO 5520	Techniques of Groundwater Investigations (CI)	3
GEO 5600	Geochemistry	3
GEO 5630	Geologic Image Analysis	3
GEO/WATS 5150	Fluvial Geomorphology	3 or 4
GEO 5680	Paleoclimatology	3
WATS 3700	Fundamentals of Watershed Science (CI)	3
WATS 4500	Limnology: Ecology of Inland Waters	3
WATS 4530	Water Quality and Pollution	3
WATS 4930	Advanced GIS and Spatial Analysis	3
WATS 5640	Riparian Ecology and Management	3
WILD 3600	Wildland Plant Ecology and Identification	4
WILD 4750	Monitoring and Assessment in Natural Resource and Environmental Management	3
WILD 4910	Assessment and Synthesis in Natural Resource Science	3
WILD 5750	Applied Remote Sensing	3

Total required 110-114 (minimum 120 required for BS degree)

Applied Climatology

The program integrates basic and applied principles of meteorology, climatology and environmental physics with land surface processes, especially water. A sound background in math, physics and the basis of physical science is utilized to examine the biophysical interactions between land ecosystems and climate at various scales. This includes learning about instrumentation and measurements of the atmosphere, soil, water and plants in the field, and how the data are used to address practical issues related to climate, water and energy. The graduates would be well prepared to pursue graduate education in atmospheric science, climatology, hydrology and most other physical sciences, but especially suited for interdisciplinary science programs. They would also be suited to work with private consulting firms to address practical problems related to issues such as climate, weather, energy and water use. Finally, they will immediately be well prepared for positions as research technicians in federal, state and university laboratories.

Emphasis in Applied Climatology

General Education Requirements (32 credits)

(CL1) ENGL 1010 Introduction to Writing (or test)	3
(CL2) ENGL 2010 Intermediate Writing	3
(QL) see preparatory courses	
(BAI)	3
(BCA)	3
(BHU)	3
(BLS) WILD 2200 Ecology of Our Changing World*	3
(BPS) PSC 13XX Forum on the LPCS*	3
(BSS) suggest ASTE 2900 Humanity in the Food Web	3
(DHA) suggest HIST 3950 Environmental History(CI)	3
(DSS)	3
(QI) see preparatory courses	
(CI) PSC 48XX Challenges in LPCS* and 1 other	2

* These specific courses are required for the LPCS major or the AC emphasis as well

Required Preparatory Courses (48 credits)

BIOL 1610 Biology I	4
MATH 1210 Calculus I	4
MATH 1220 Calculus II	4
MATH 2250 Linear Algebra and Differential Equations	4
STAT 3000 Statistics for Scientists	3
PHYS 2210 Physics for Scientists & Engineers I	4
PHYS 2220 Physics for Scientists & Engineers II	4
CHEM 1210 Principles of Chemistry	4
GEO 1110 Physical Geology	3
GEO 1115 Physical Geology Lab	1
PSC 2000 Atmosphere and Weather	3
PSC 3000 Fundamentals of Soil Science	4
PSC 3820 Climate Change	3
PSC 3500 Structure and Function of Plants	3

Required Professional Core (26 credits)

GEO 3150 Energy in the 21 st Century	3
PSC 5000 Environmental Instrumentation	2
PSC 5270 Environmental Plant Physiology	2
PSC 5670 Environmental Soil Physics	4
PSC 5500 Land-Atmosphere Interactions	2
PSC 5300 Remote Sensing of Land Surfaces	4
PSC 5400 General Meteorology	3
GEO 5680 Paleoclimatology	3
PSC 6900 Special Problems Climate Data Analysis	3

Further Discipline Courses (choose 12 credits)

Select 15 credits from this list of supporting courses

CEE 3430 Engineering Hydrology	3
GEO 1110 Physical Geology and Geo 1115 Laboratory	4
GEO 3200 Earth Through Time (QI/DSC)	3
GEO 5440 Paleoecology (CI)	2
GEO 3100 Natural Disasters (DSC)	3
GEO 3600 Geomorphology	4
JCOM 1130 Beginning Newswriting for the Mass Media	3
ENVS 5750 Sustainable Living	3
ECON 5560 Natural resources and environmental economics	3
PSC 4200* Global and Regional Climatology	2
WILD/BIOL/SOIL 6200 Biogeochem of Terrestrial Ecosys	3

*Possible New Classes to Be Created

Total required 118 (minimum 120 required for BS degree)

Considerations for General Education Requirements (30-34 credits)

Competency Requirements (9-10 credits)

CL 6 credits, QL 3-4 credits,

Breadth Requirements (18-20 credits)

BAI, BCA, BHU, BLS, BPS and BSS

Exploration Requirement (3-4 credits)

Depth Education Requirements

CI 2 courses, QI 1 course, 1 DHA + 1 DSS (4 cr. min.)

Upper Division Credits Requirement

40 credits numbered 3000 or above

Some suggested courses to fulfill General Studies Requirements

ASTE 5260 (CI) Environ. Impacts of Agric. Systems	3
ASTE 2900 (BSS) Humanity in the Food Web	3
ENGL 1010 (CL) Introduction to Writing	3
ENGL 2010 (CL) Intermediate Writing	3
HIST 3950 (DHA; CI) Environmental History	3
JCOM 1510 (BSS) Introduction to Mass Communication	3
PHIL 4310 (DHA) Philosophy of Science	3
PHIL 3510 (DHA) - Environmental Ethics	3
POLS 3810 (DSS) Introduction to Public Policy	3
USU 1300 (BAI) US Institutions	3
USU 1330 (BCA) Civilization: Creative Arts	3
WILD 2200 (BLS) Ecology of Our Changing World	3